OIPE IAP21
NOV 24 2006
PATENT & TRADEMARK OFFICE

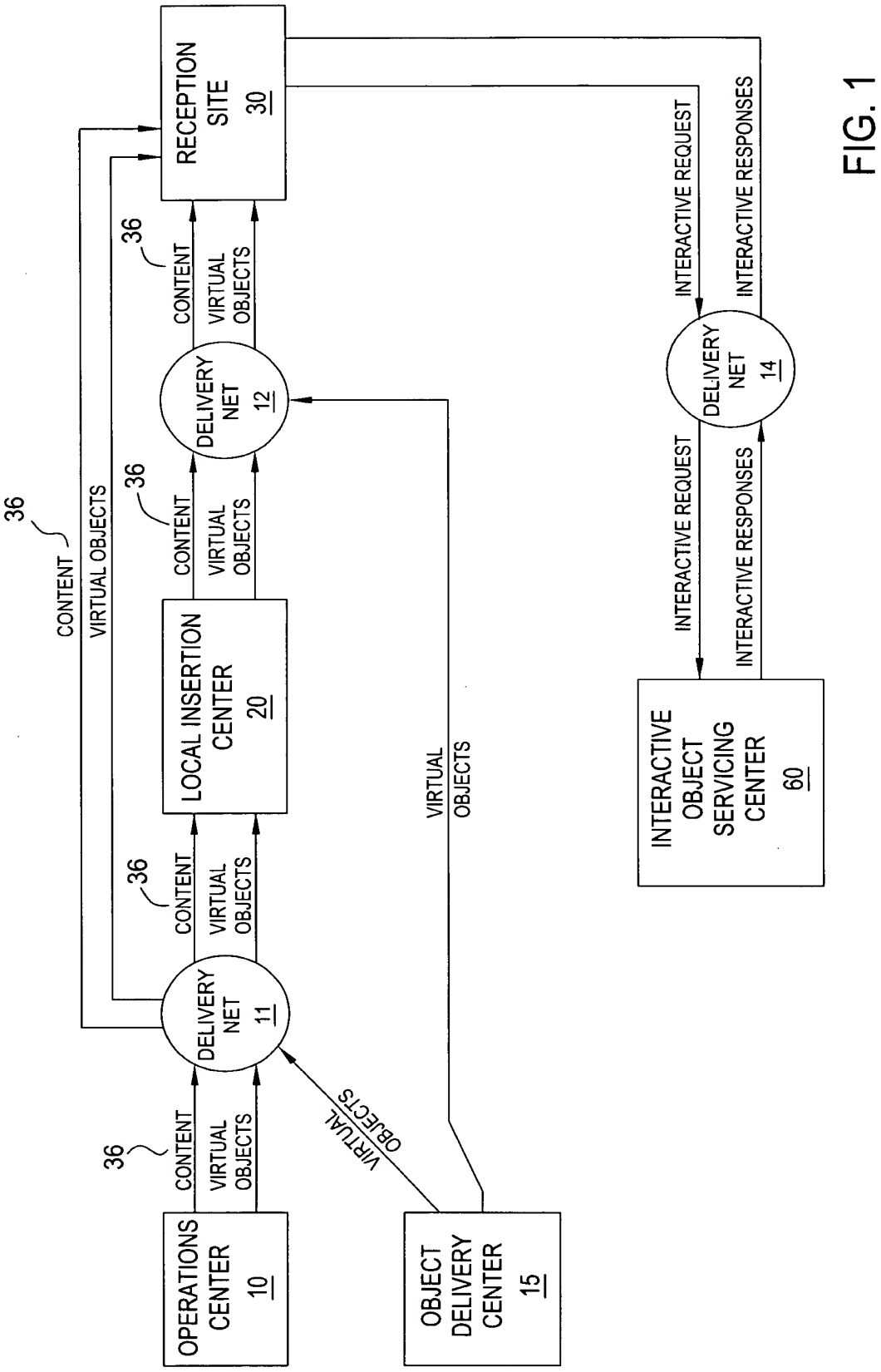


FIG. 1

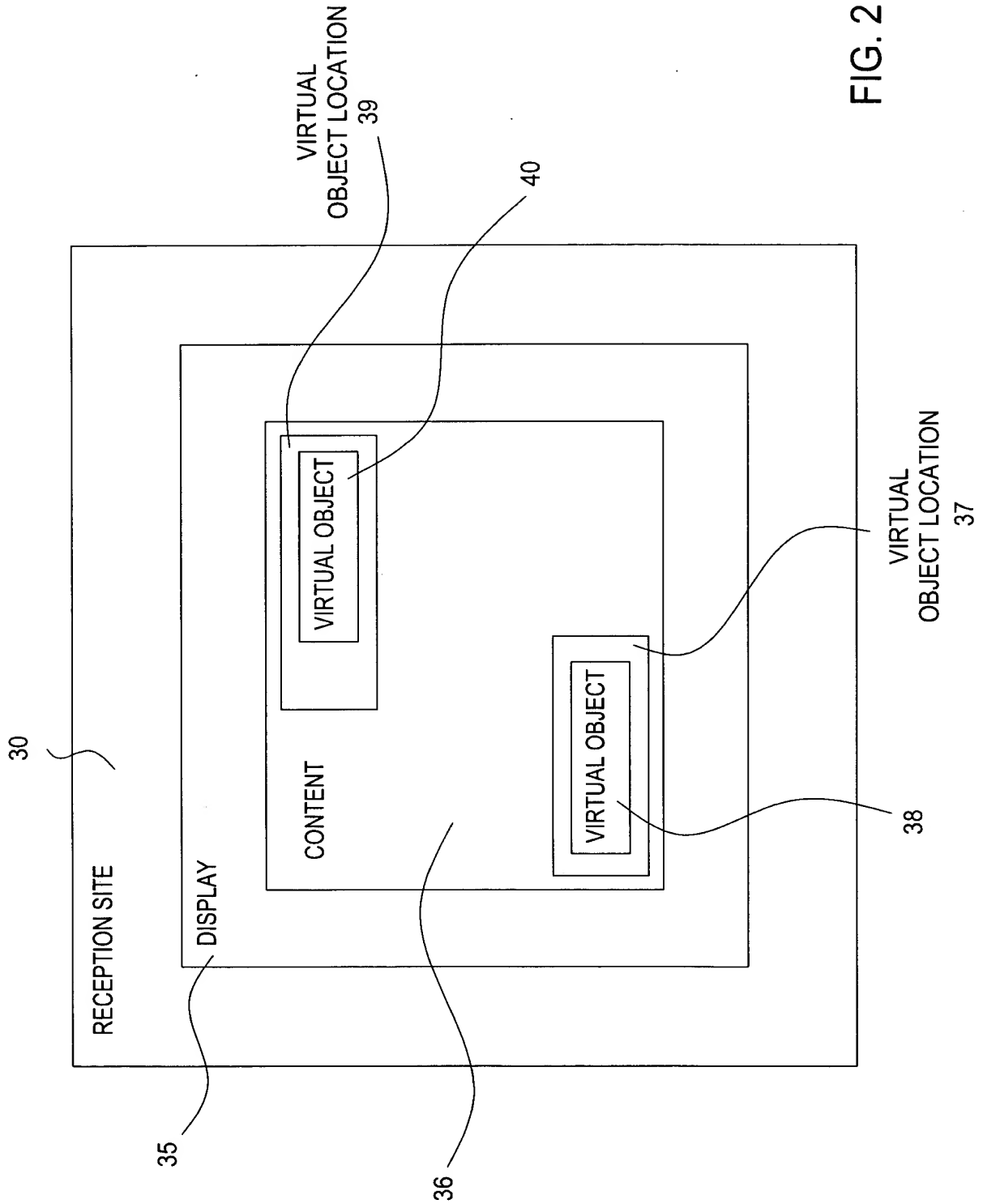

VIRTUAL OBJECT LOCATION
39
40
VIRTUAL OBJECT
VIRTUAL OBJECT LOCATION
37
30
CONTENT
VIRTUAL OBJECT
38
RECEPTION SITE
DISPLAY
35
36

FIG. 2

FIG. 3

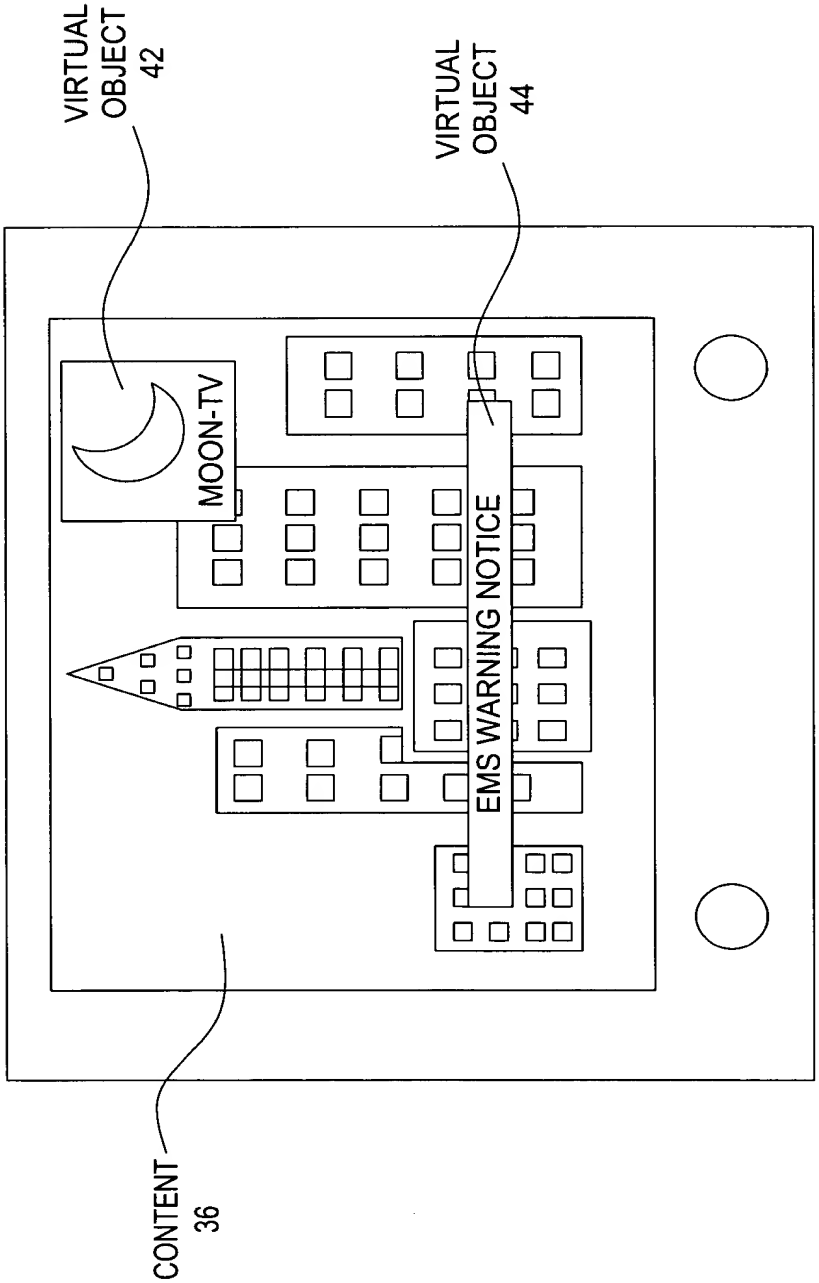
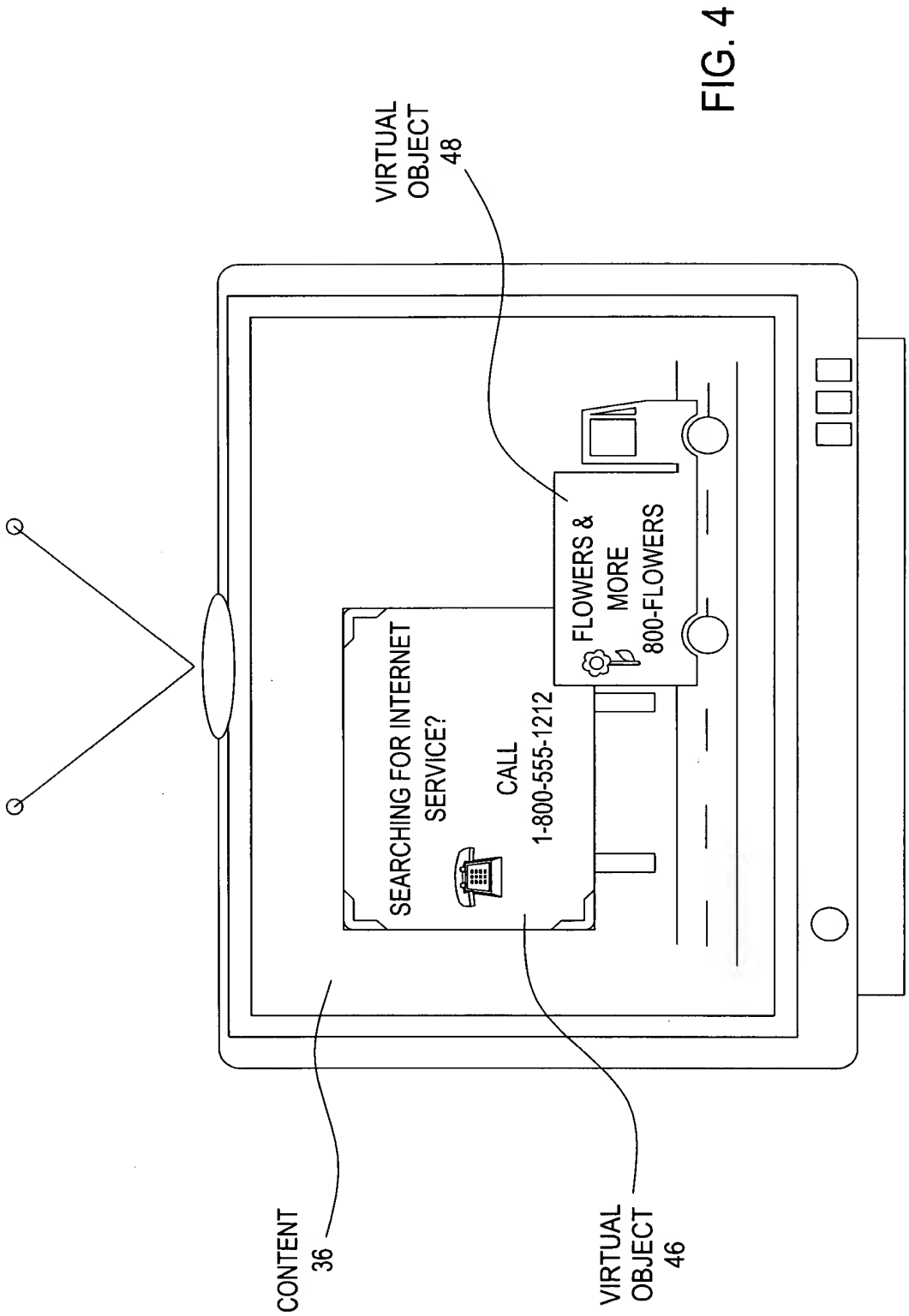

VIRTUAL OBJECT 42
VIRTUAL OBJECT 44
MOON-TV
EMS WARNING NOTICE
CONTENT 36

FIG. 4


VIRTUAL OBJECT 48
FLOWERS & MORE 800-FLOWERS
SEARCHING FOR INTERNET SERVICE?
CALL 1-800-555-1212
CONTENT 36
VIRTUAL OBJECT 46

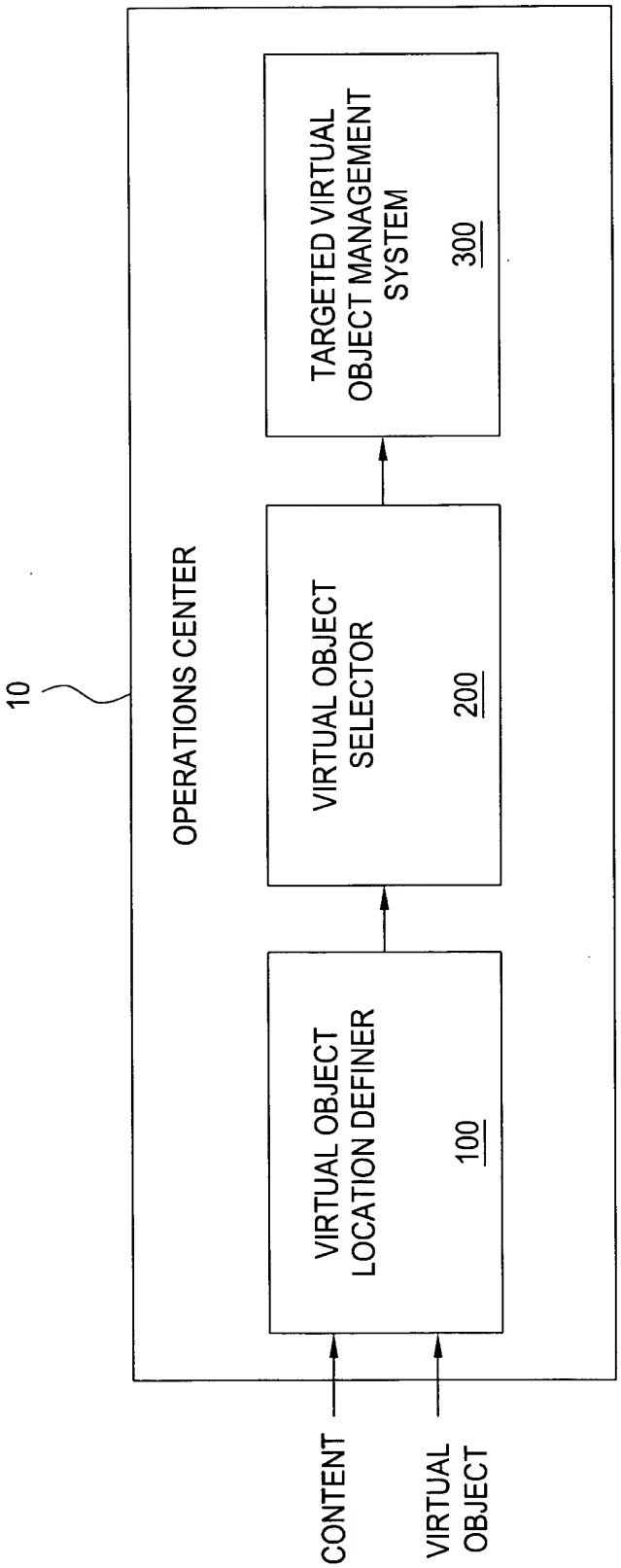

10
OPERATIONS CENTER
VIRTUAL OBJECT LOCATION DEFINER
100
VIRTUAL OBJECT SELECTOR
200
TARGETED VIRTUAL OBJECT MANAGEMENT SYSTEM
300
CONTENT
VIRTUAL OBJECT

FIG. 5

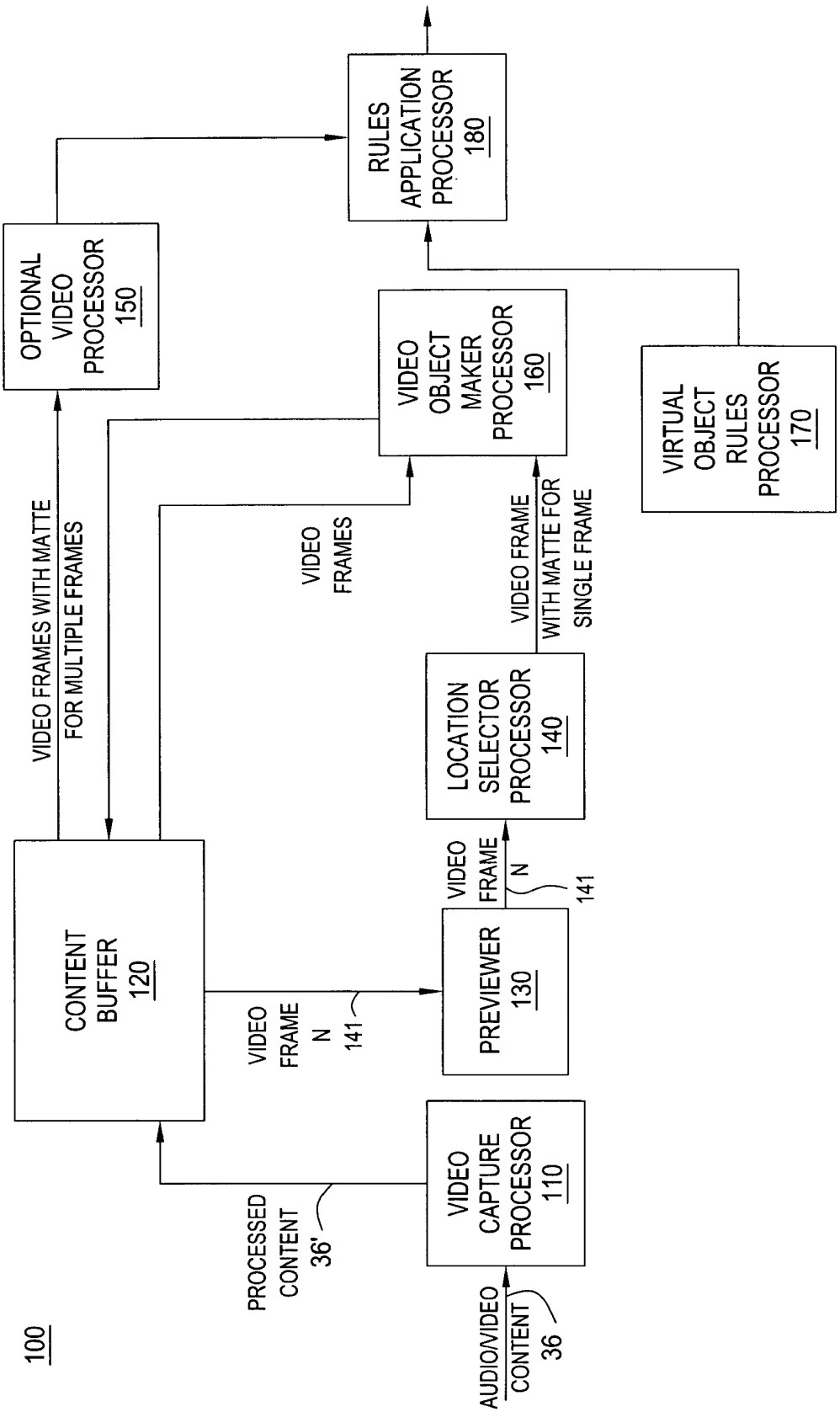

100
AUDIO/VIDEO CONTENT 36
VIDEO CAPTURE PROCESSOR 110
PROCESSED CONTENT 36'
CONTENT BUFFER 120
VIDEO FRAME N 141
PREVIEWER 130
VIDEO FRAME N 141
LOCATION SELECTOR PROCESSOR 140
VIDEO FRAMES
VIDEO FRAME WITH MATTE FOR SINGLE FRAME
VIDEO OBJECT MAKER PROCESSOR 160
VIRTUAL OBJECT RULES PROCESSOR 170
VIDEO FRAMES WITH MATTE FOR MULTIPLE FRAMES
OPTIONAL VIDEO PROCESSOR 150
RULES APPLICATION PROCESSOR 180

FIG. 6

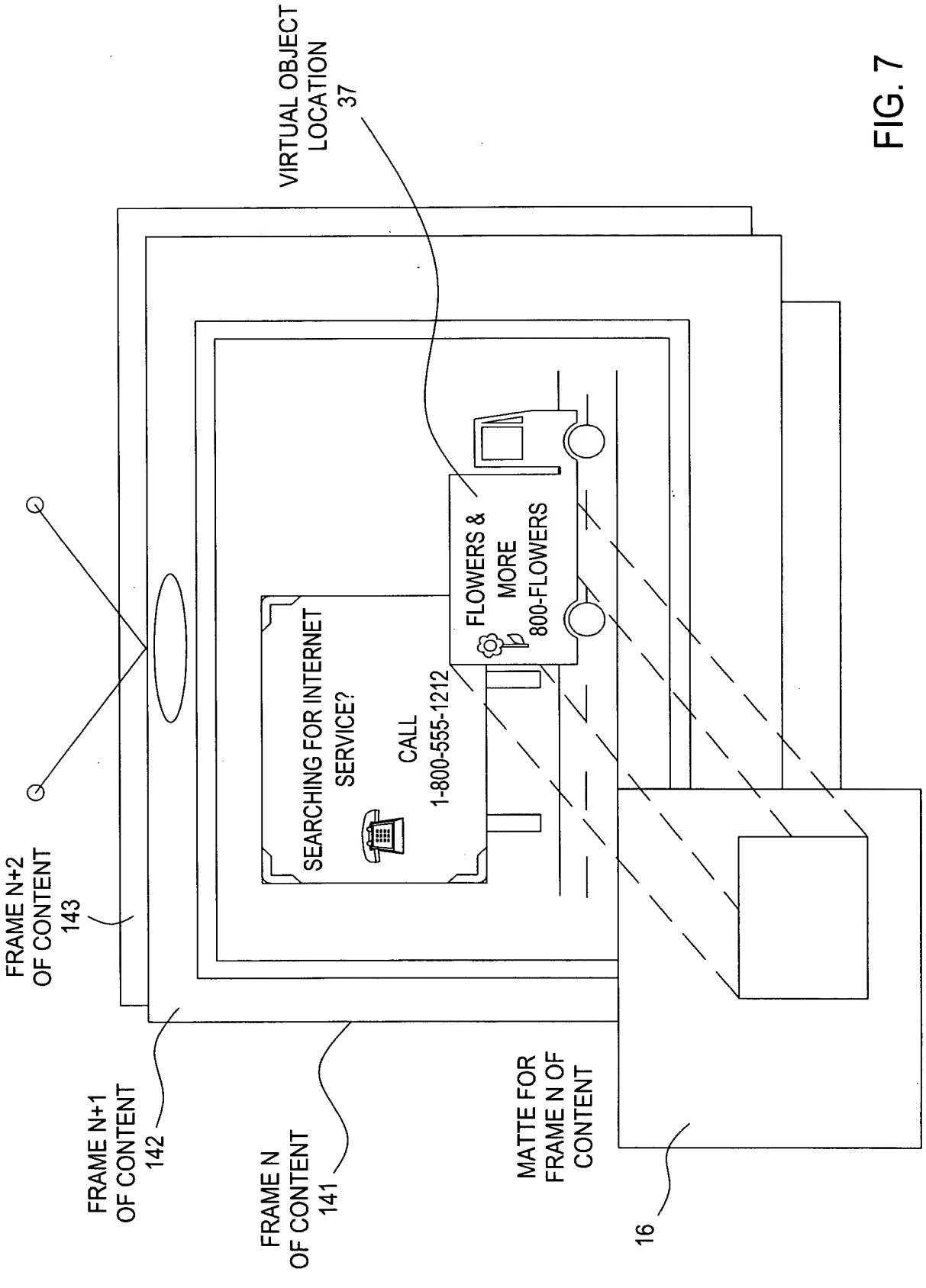
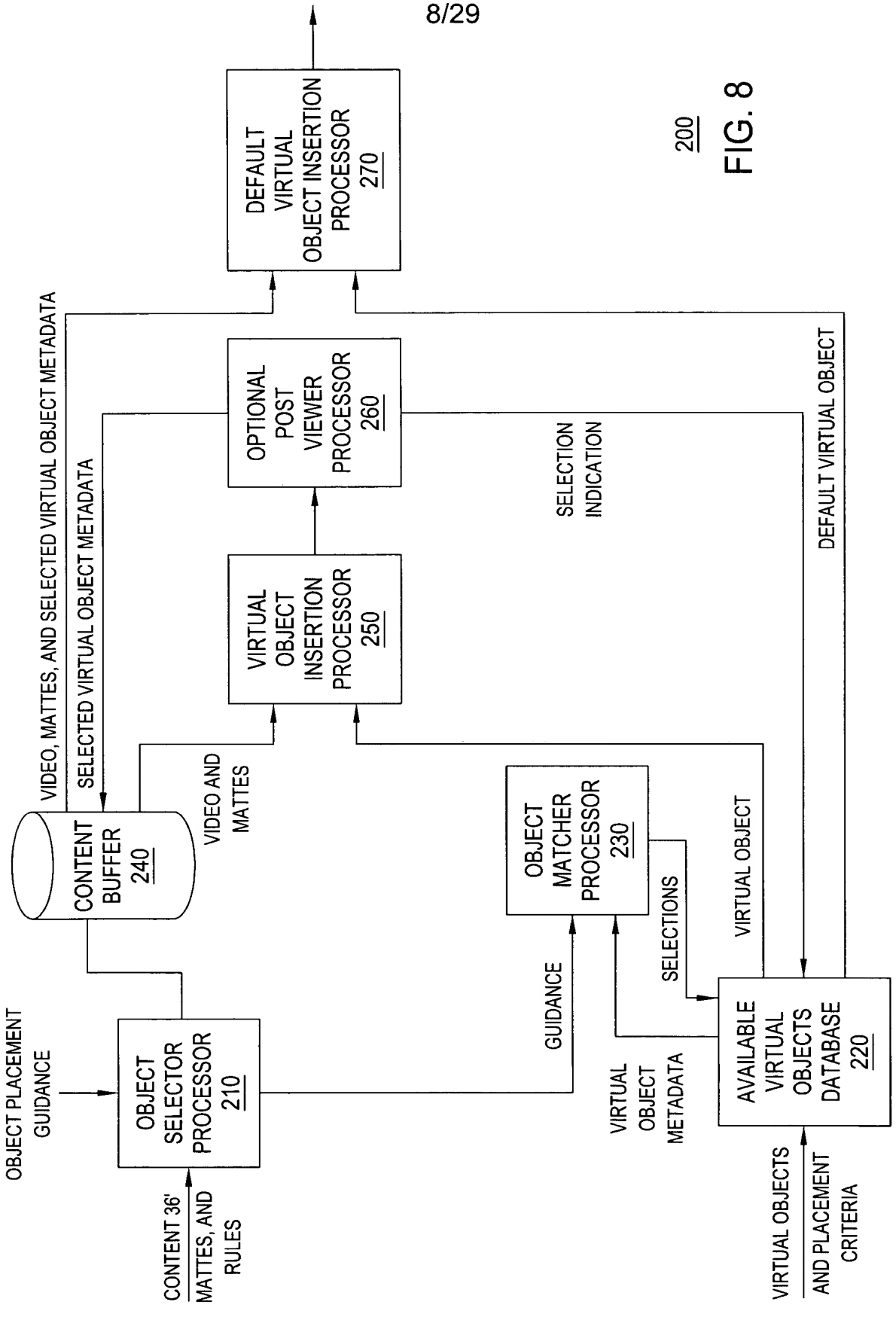

VIRTUAL OBJECT LOCATION 37
FLOWERS & MORE 800-FLOWERS
SEARCHING FOR INTERNET SERVICE?
CALL 1-800-555-1212
FRAME N+2 OF CONTENT 143
FRAME N+1 OF CONTENT 142
FRAME N OF CONTENT 141
MATTE FOR FRAME N OF CONTENT
16

FIG. 7


DEFAULT VIRTUAL OBJECT INSERTION PROCESSOR 270
OPTIONAL POST VIEWER PROCESSOR 260
VIRTUAL OBJECT INSERTION PROCESSOR 250
CONTENT BUFFER 240
OBJECT SELECTOR PROCESSOR 210
OBJECT MATCHER PROCESSOR 230
AVAILABLE VIRTUAL OBJECTS DATABASE 220
VIDEO, MATTES, AND SELECTED VIRTUAL OBJECT METADATA
SELECTED VIRTUAL OBJECT METADATA
VIDEO AND MATTES
SELECTION INDICATION
DEFAULT VIRTUAL OBJECT
GUIDANCE
SELECTIONS
VIRTUAL OBJECT
OBJECT PLACEMENT GUIDANCE
CONTENT 36' MATTES, AND RULES
VIRTUAL OBJECT METADATA
VIRTUAL OBJECTS AND PLACEMENT CRITERIA

200

FIG. 8

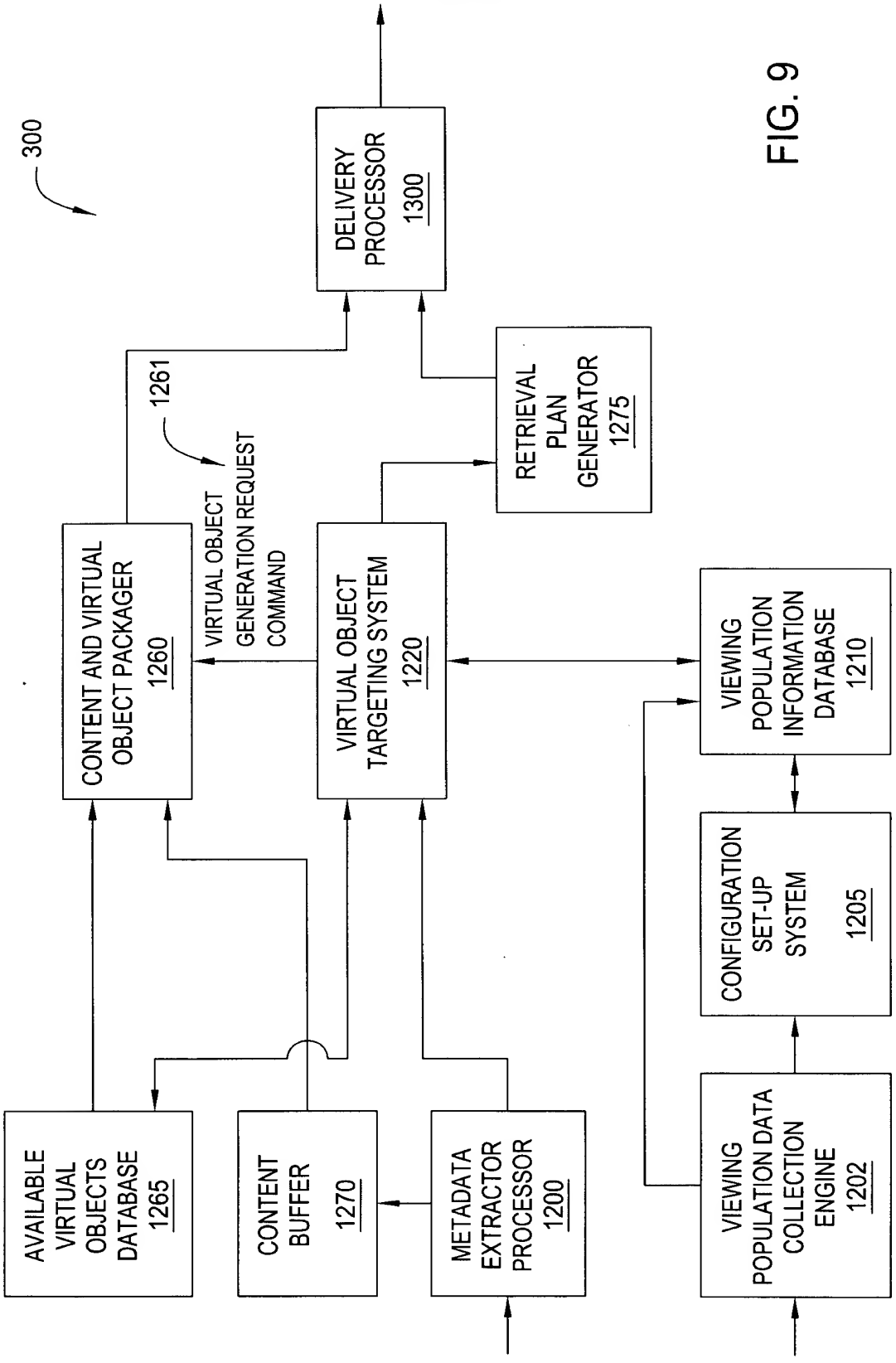

300
DELIVERY PROCESSOR 1300
RETRIEVAL PLAN GENERATOR 1275
1261
VIRTUAL OBJECT GENERATION REQUEST COMMAND
CONTENT AND VIRTUAL OBJECT PACKAGER 1260
VIRTUAL OBJECT TARGETING SYSTEM 1220
VIEWING POPULATION INFORMATION DATABASE 1210
CONFIGURATION SET-UP SYSTEM 1205
AVAILABLE VIRTUAL OBJECTS DATABASE 1265
CONTENT BUFFER 1270
METADATA EXTRACTOR PROCESSOR 1200
VIEWING POPULATION DATA COLLECTION ENGINE 1202

FIG. 9

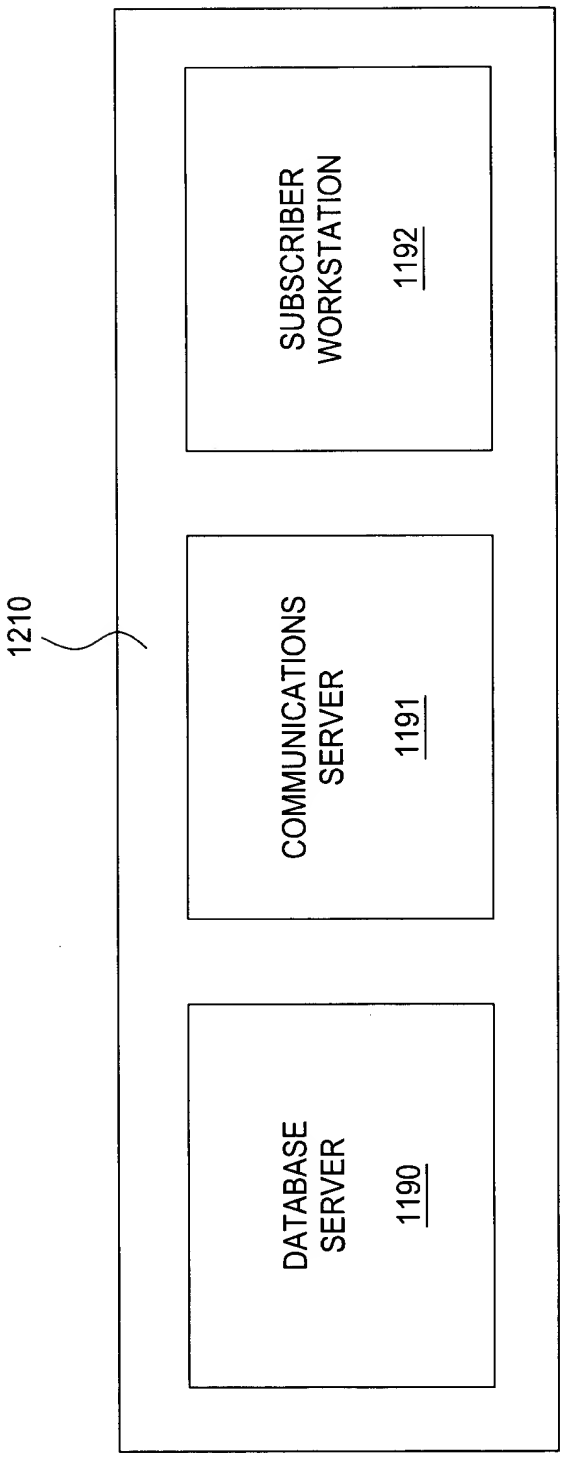

1210
SUBSCRIBER WORKSTATION 1192
COMMUNICATIONS SERVER 1191
DATABASE SERVER 1190

FIG. 11

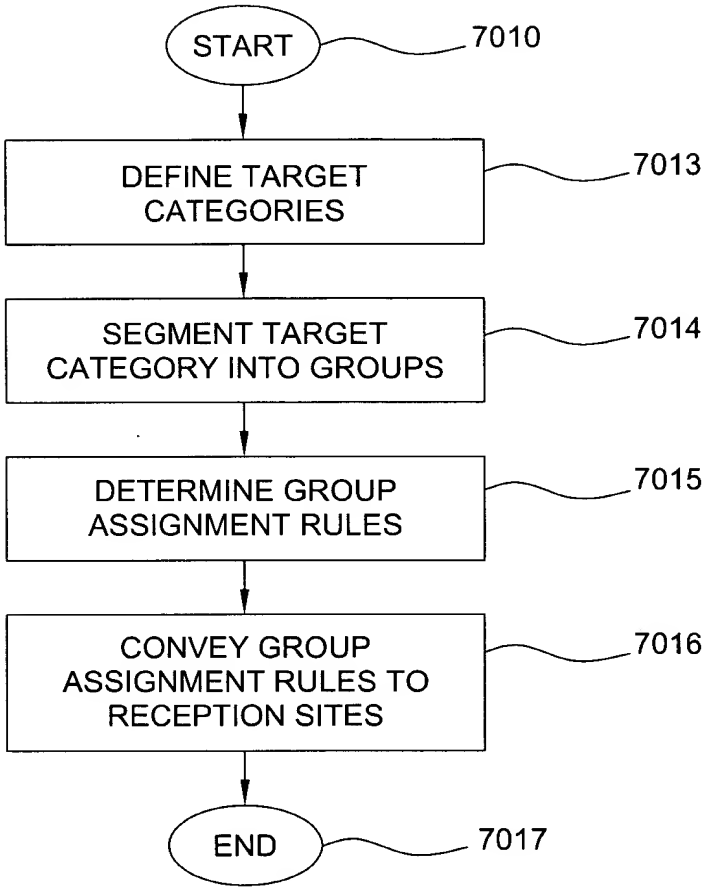

START
7010
DEFINE TARGET CATEGORIES
7013
SEGMENT TARGET CATEGORY INTO GROUPS
7014
DETERMINE GROUP ASSIGNMENT RULES
7015
CONVEY GROUP ASSIGNMENT RULES TO RECEPTION SITES
7016
END
7017

FIG. 10

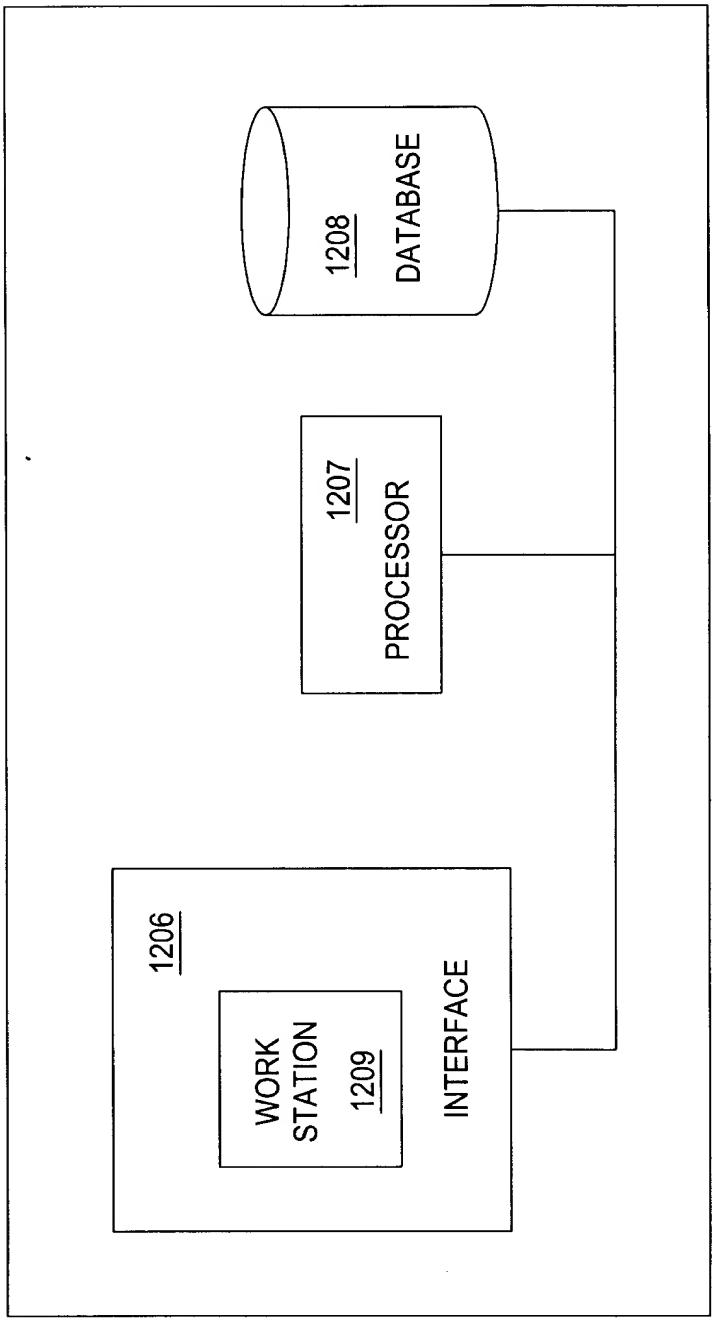

1208
DATABASE
1207
PROCESSOR
1206
WORK STATION
1209
INTERFACE
1205

FIG. 12

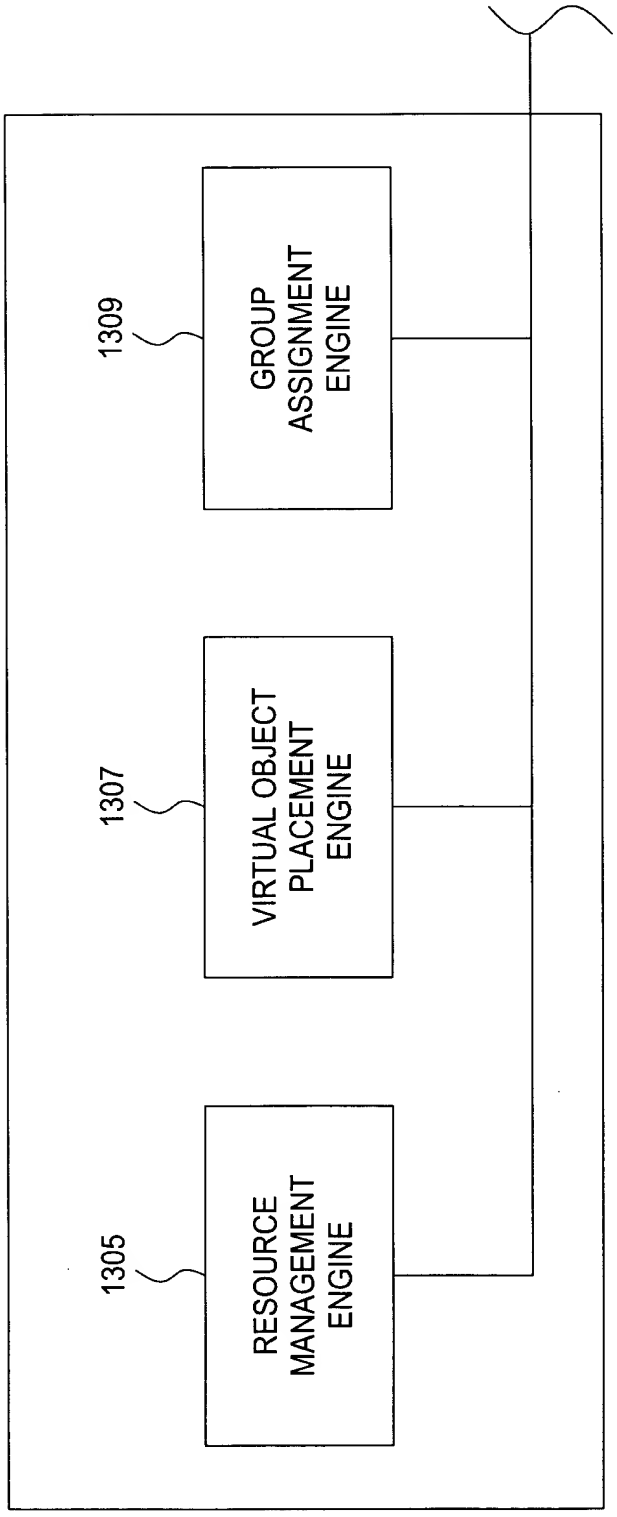

1309
GROUP ASSIGNMENT ENGINE
1307
VIRTUAL OBJECT PLACEMENT ENGINE
1305
RESOURCE MANAGEMENT ENGINE
1220

FIG. 13

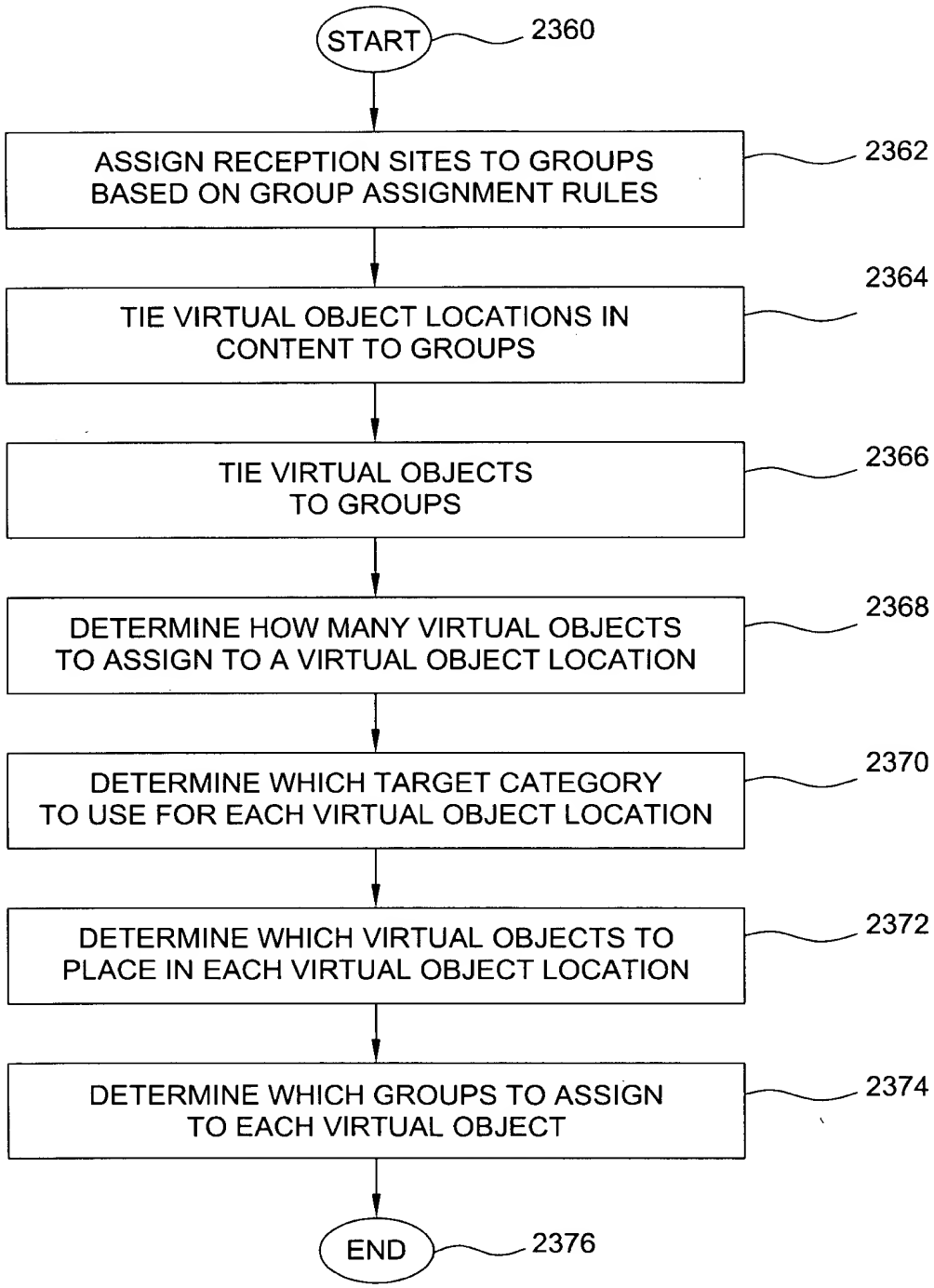

START
2360
ASSIGN RECEPTION SITES TO GROUPS BASED ON GROUP ASSIGNMENT RULES
2362
TIE VIRTUAL OBJECT LOCATIONS IN CONTENT TO GROUPS
2364
TIE VIRTUAL OBJECTS TO GROUPS
2366
DETERMINE HOW MANY VIRTUAL OBJECTS TO ASSIGN TO A VIRTUAL OBJECT LOCATION
2368
DETERMINE WHICH TARGET CATEGORY TO USE FOR EACH VIRTUAL OBJECT LOCATION
2370
DETERMINE WHICH VIRTUAL OBJECTS TO PLACE IN EACH VIRTUAL OBJECT LOCATION
2372
DETERMINE WHICH GROUPS TO ASSIGN TO EACH VIRTUAL OBJECT
2374
END
2376

FIG. 14

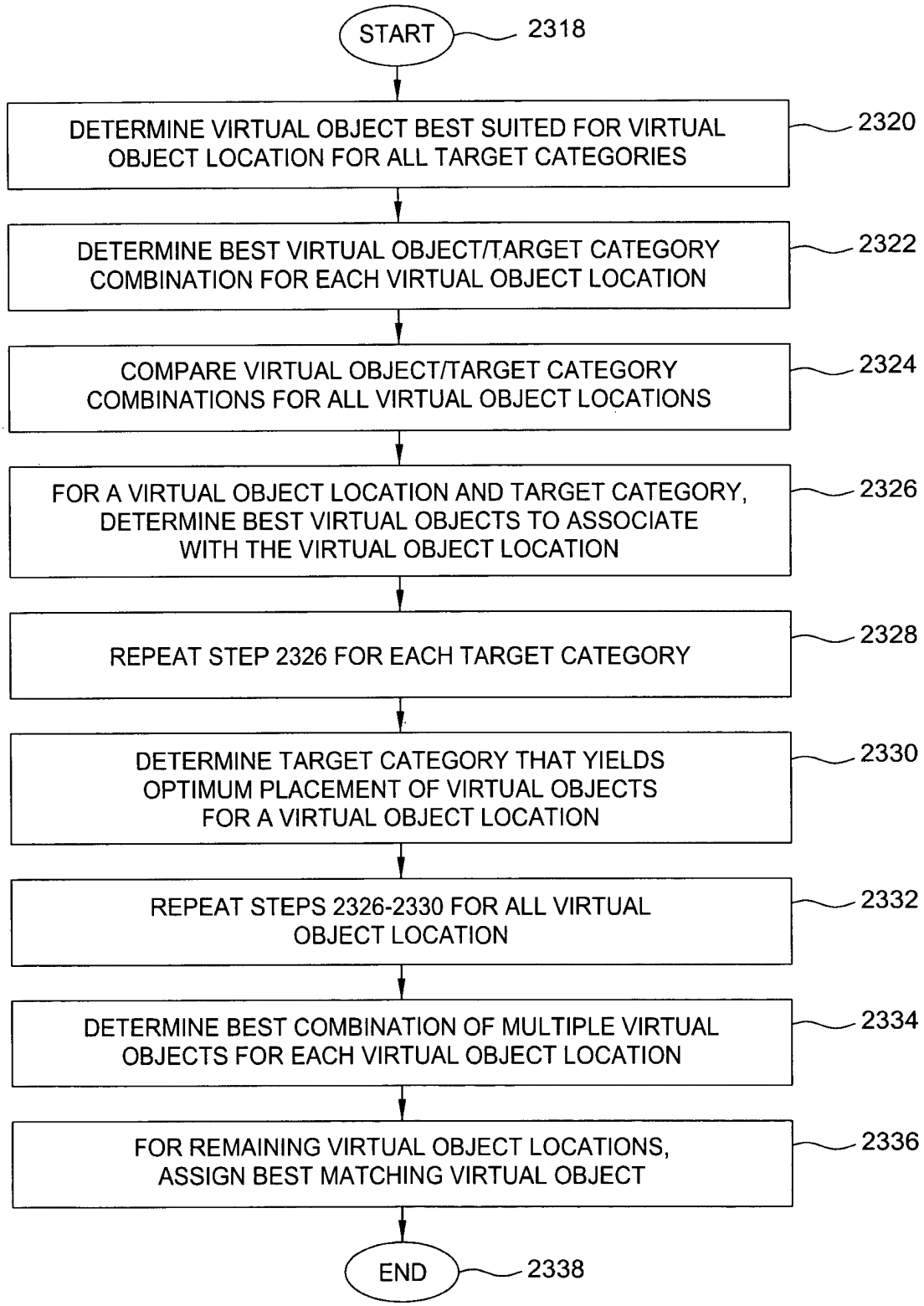

START
2318
DETERMINE VIRTUAL OBJECT BEST SUITED FOR VIRTUAL OBJECT LOCATION FOR ALL TARGET CATEGORIES
2320
DETERMINE BEST VIRTUAL OBJECT/TARGET CATEGORY COMBINATION FOR EACH VIRTUAL OBJECT LOCATION
2322
COMPARE VIRTUAL OBJECT/TARGET CATEGORY COMBINATIONS FOR ALL VIRTUAL OBJECT LOCATIONS
2324
FOR A VIRTUAL OBJECT LOCATION AND TARGET CATEGORY, DETERMINE BEST VIRTUAL OBJECTS TO ASSOCIATE WITH THE VIRTUAL OBJECT LOCATION
2326
REPEAT STEP 2326 FOR EACH TARGET CATEGORY
2328
DETERMINE TARGET CATEGORY THAT YIELDS OPTIMUM PLACEMENT OF VIRTUAL OBJECTS FOR A VIRTUAL OBJECT LOCATION
2330
REPEAT STEPS 2326-2330 FOR ALL VIRTUAL OBJECT LOCATION
2332
DETERMINE BEST COMBINATION OF MULTIPLE VIRTUAL OBJECTS FOR EACH VIRTUAL OBJECT LOCATION
2334
FOR REMAINING VIRTUAL OBJECT LOCATIONS, ASSIGN BEST MATCHING VIRTUAL OBJECT
2336
END
2338

FIG. 15

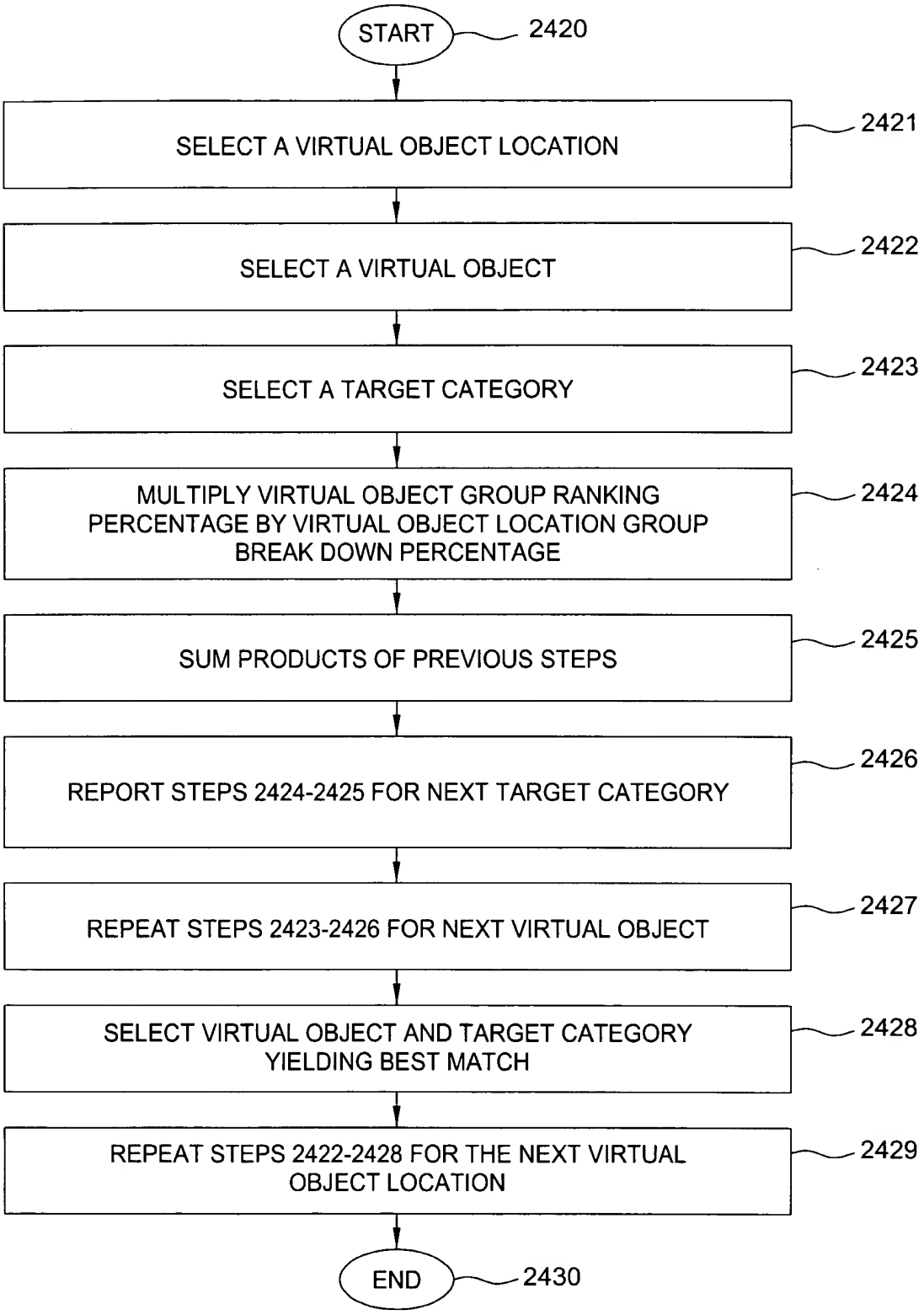

START
2420
SELECT A VIRTUAL OBJECT LOCATION
2421
SELECT A VIRTUAL OBJECT
2422
SELECT A TARGET CATEGORY
2423
MULTIPLY VIRTUAL OBJECT GROUP RANKING PERCENTAGE BY VIRTUAL OBJECT LOCATION GROUP BREAK DOWN PERCENTAGE
2424
SUM PRODUCTS OF PREVIOUS STEPS
2425
REPORT STEPS 2424-2425 FOR NEXT TARGET CATEGORY
2426
REPEAT STEPS 2423-2426 FOR NEXT VIRTUAL OBJECT
2427
SELECT VIRTUAL OBJECT AND TARGET CATEGORY YIELDING BEST MATCH
2428
REPEAT STEPS 2422-2428 FOR THE NEXT VIRTUAL OBJECT LOCATION
2429
END
2430

FIG. 16

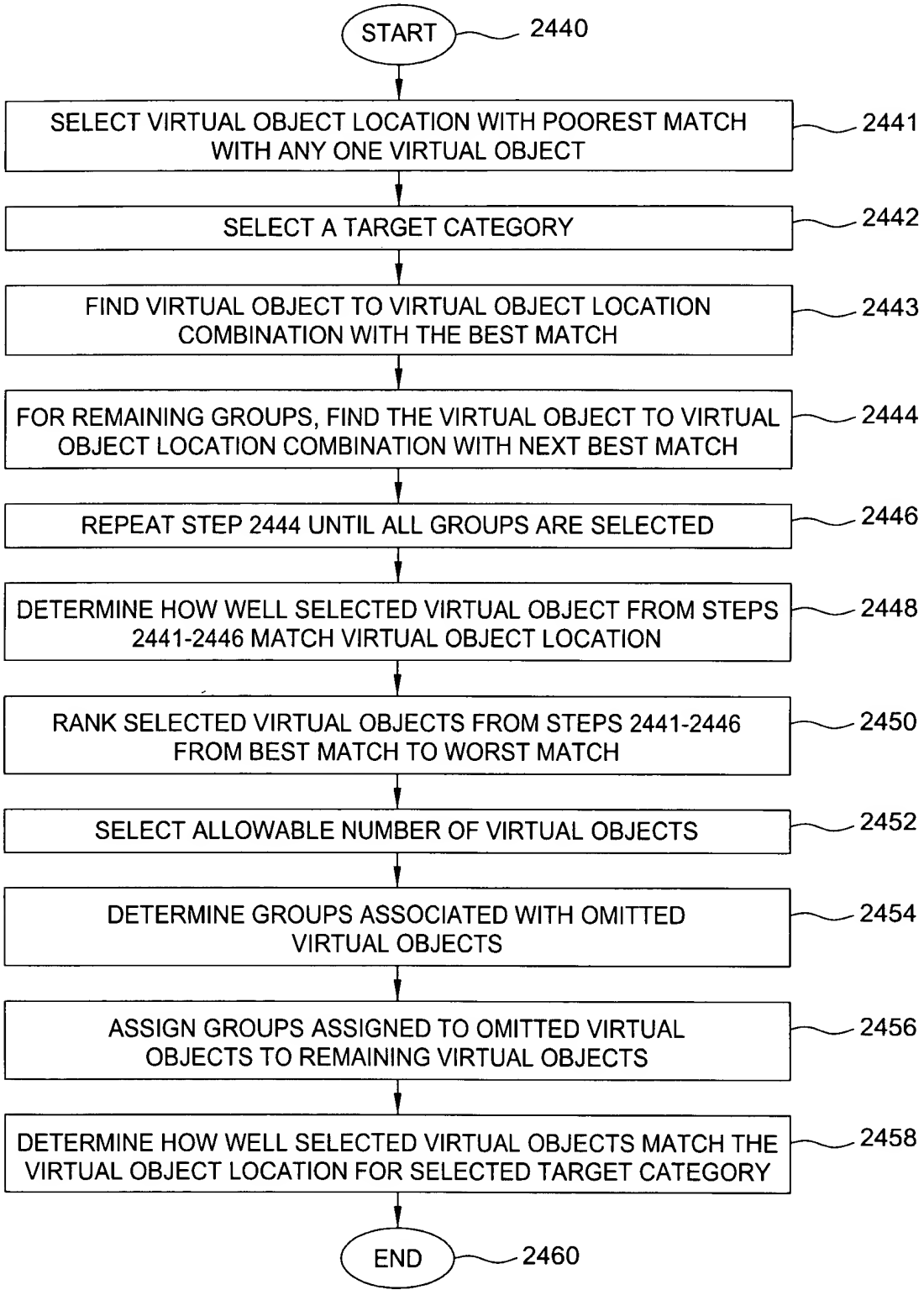

START
2440
SELECT VIRTUAL OBJECT LOCATION WITH POOREST MATCH WITH ANY ONE VIRTUAL OBJECT
2441
SELECT A TARGET CATEGORY
2442
FIND VIRTUAL OBJECT TO VIRTUAL OBJECT LOCATION COMBINATION WITH THE BEST MATCH
2443
FOR REMAINING GROUPS, FIND THE VIRTUAL OBJECT TO VIRTUAL OBJECT LOCATION COMBINATION WITH NEXT BEST MATCH
2444
REPEAT STEP 2444 UNTIL ALL GROUPS ARE SELECTED
2446
DETERMINE HOW WELL SELECTED VIRTUAL OBJECT FROM STEPS 2441-2446 MATCH VIRTUAL OBJECT LOCATION
2448
RANK SELECTED VIRTUAL OBJECTS FROM STEPS 2441-2446 FROM BEST MATCH TO WORST MATCH
2450
SELECT ALLOWABLE NUMBER OF VIRTUAL OBJECTS
2452
DETERMINE GROUPS ASSOCIATED WITH OMITTED VIRTUAL OBJECTS
2454
ASSIGN GROUPS ASSIGNED TO OMITTED VIRTUAL OBJECTS TO REMAINING VIRTUAL OBJECTS
2456
DETERMINE HOW WELL SELECTED VIRTUAL OBJECTS MATCH THE VIRTUAL OBJECT LOCATION FOR SELECTED TARGET CATEGORY
2458
END
2460

FIG. 17

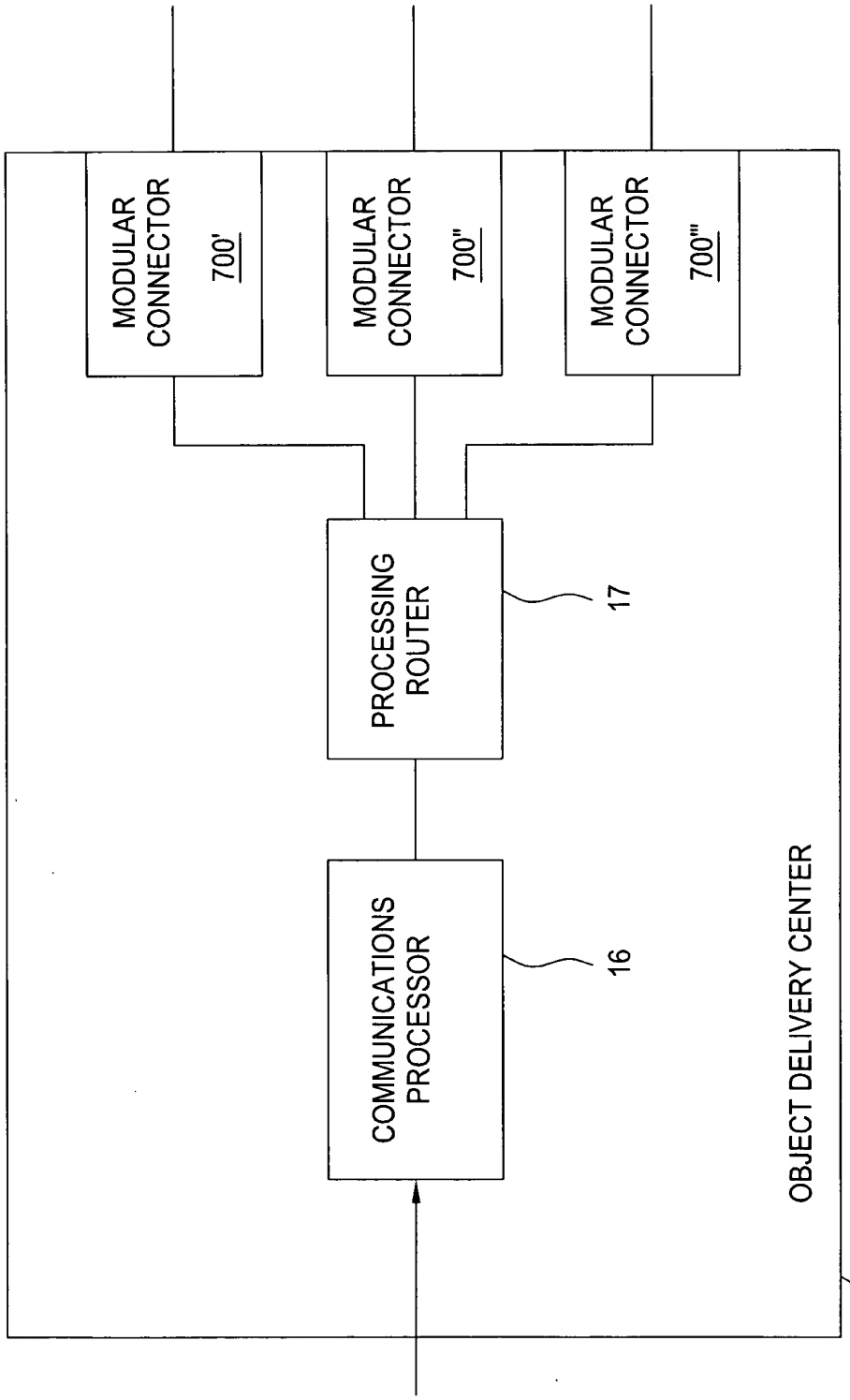

MODULAR CONNECTOR 700'
MODULAR CONNECTOR 700"
MODULAR CONNECTOR 700'''
PROCESSING ROUTER
17
COMMUNICATIONS PROCESSOR
16
OBJECT DELIVERY CENTER
15

FIG. 18

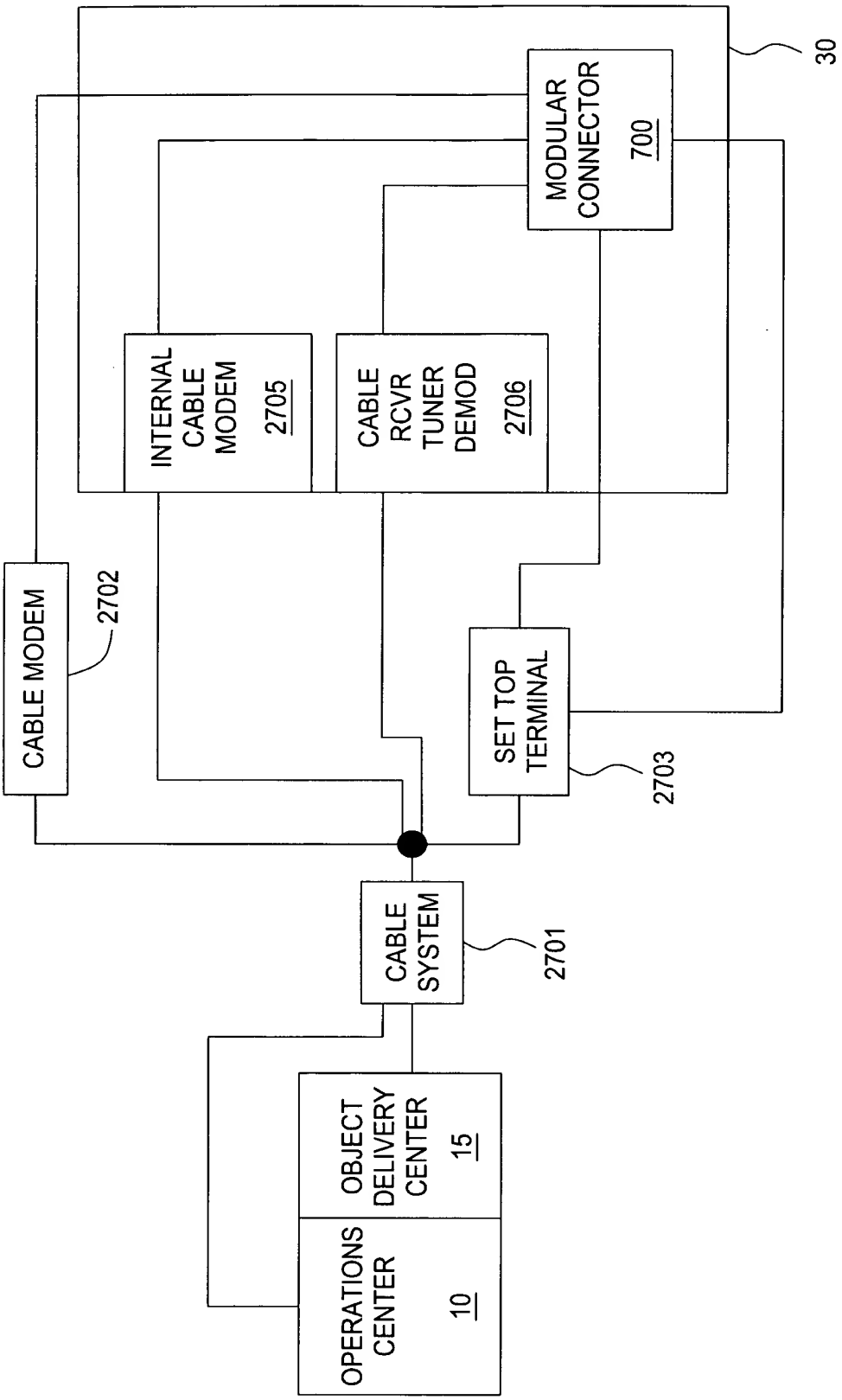

30
MODULAR CONNECTOR 700
INTERNAL CABLE MODEM 2705
CABLE RCVR TUNER DEMOD 2706
CABLE MODEM 2702
SET TOP TERMINAL 2703
CABLE SYSTEM 2701
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 19

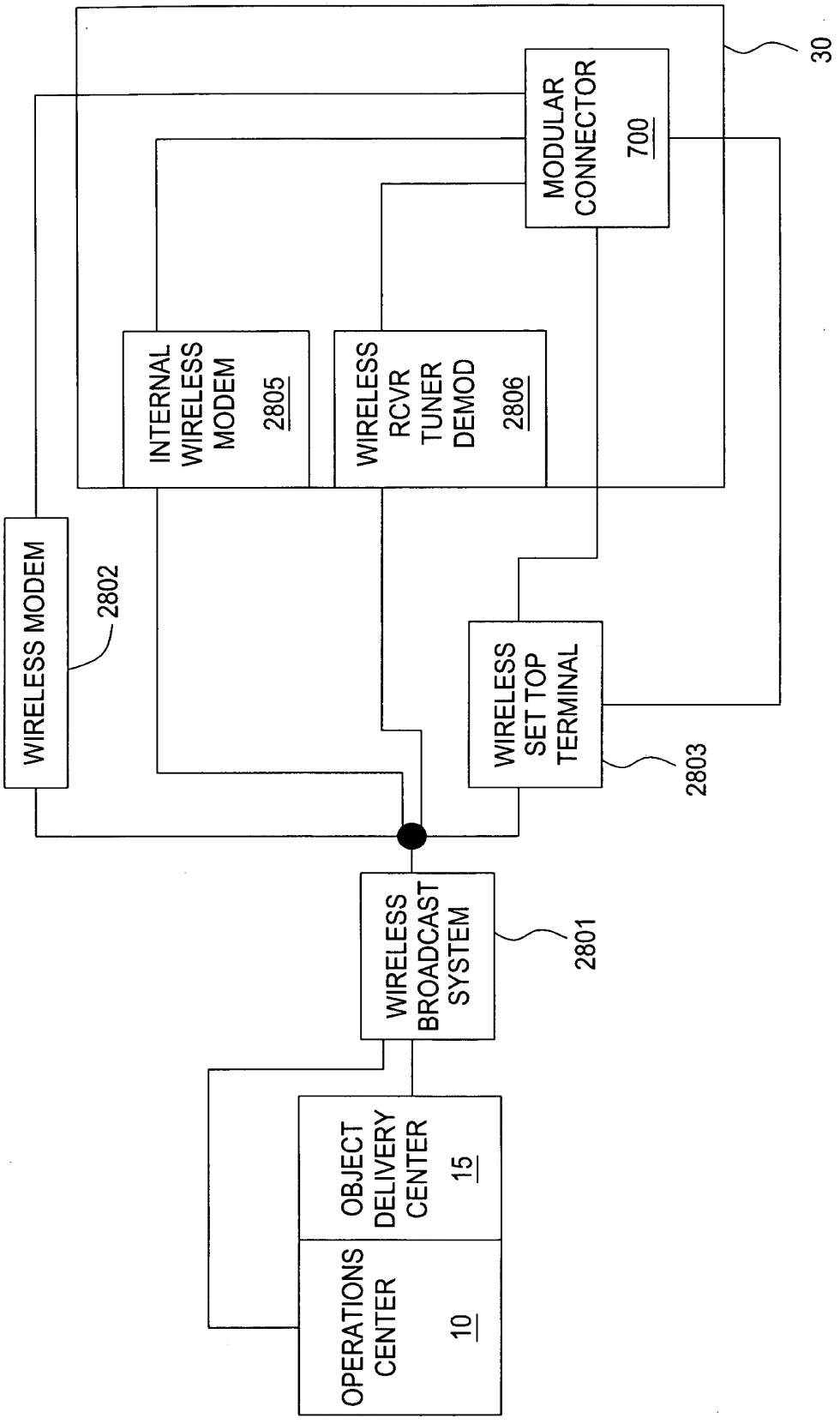

30
MODULAR CONNECTOR 700
INTERNAL WIRELESS MODEM 2805
WIRELESS RCVR TUNER DEMOD 2806
WIRELESS MODEM 2802
WIRELESS SET TOP TERMINAL 2803
WIRELESS BROADCAST SYSTEM 2801
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 20

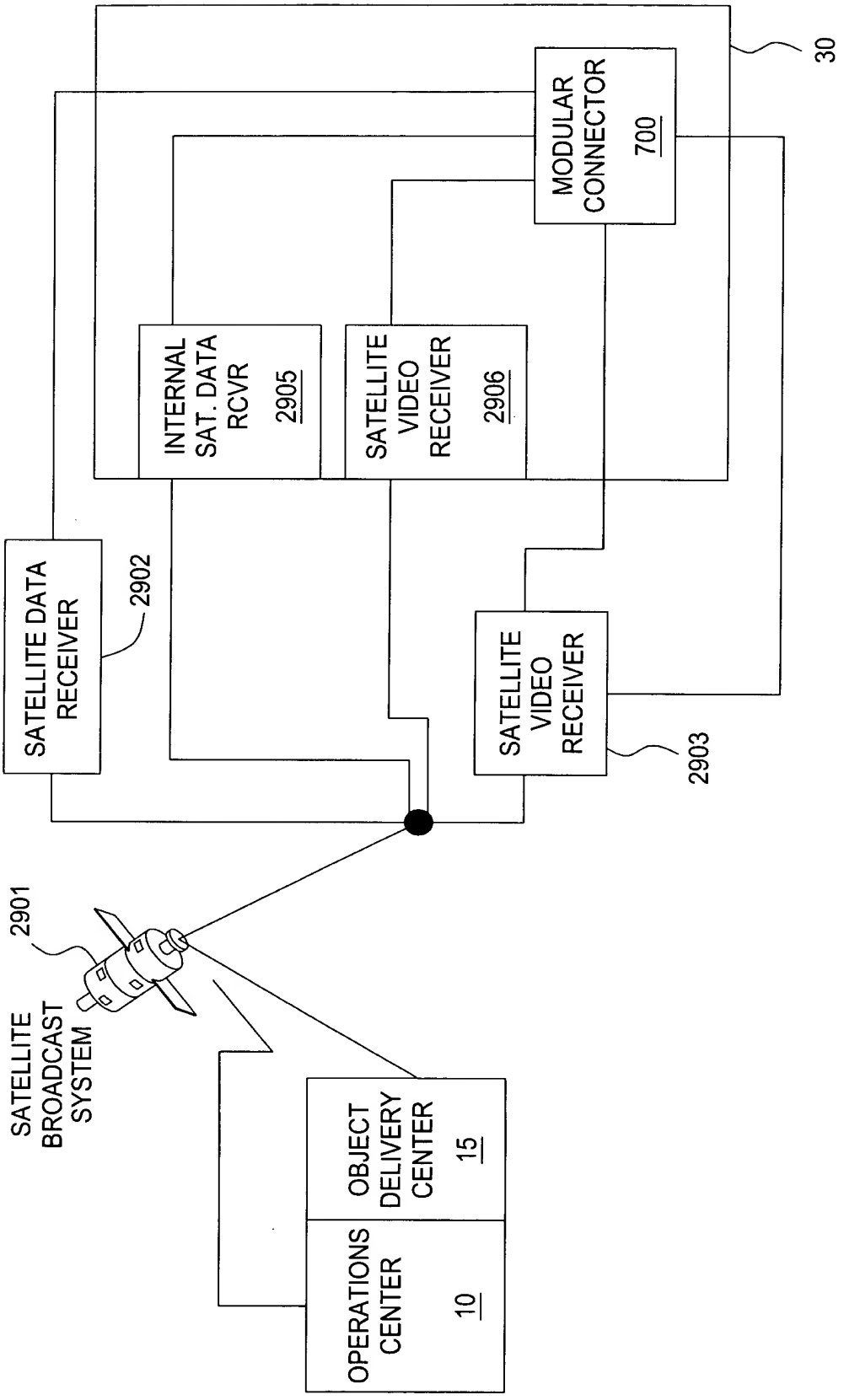

30
MODULAR CONNECTOR 700
INTERNAL SAT. DATA RCVR 2905
SATELLITE VIDEO RECEIVER 2906
SATELLITE DATA RECEIVER
2902
SATELLITE VIDEO RECEIVER
2903
2901
SATELLITE BROADCAST SYSTEM
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 21

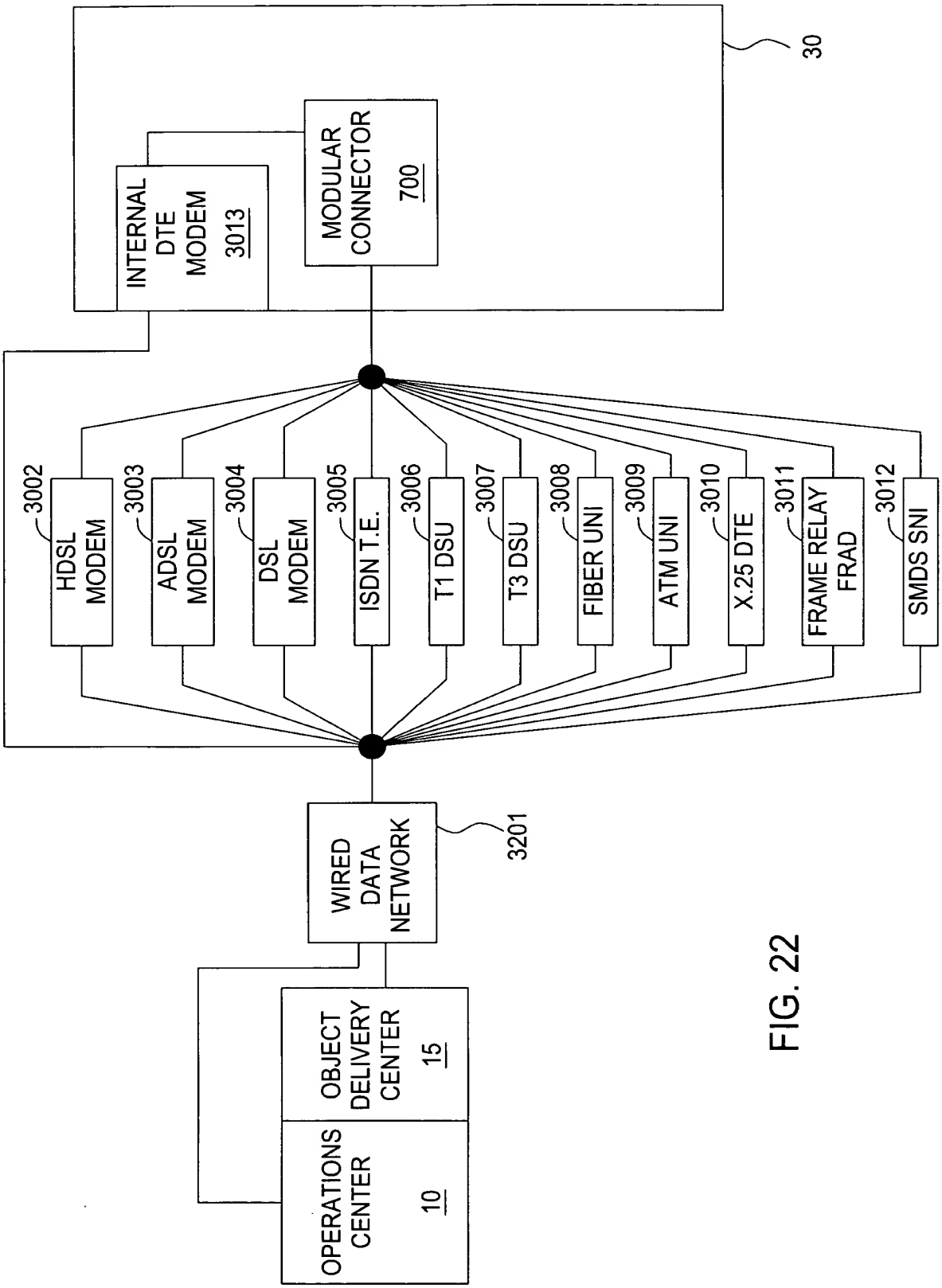

30
INTERNAL DTE MODEM 3013
MODULAR CONNECTOR 700
3002 HDSL MODEM
3003 ADSL MODEM
3004 DSL MODEM
3005 ISDN T.E.
3006 T1 DSU
3007 T3 DSU
3008 FIBER UNI
3009 ATM UNI
3010 X.25 DTE
3011 FRAME RELAY FRAD
3012 SMDS SNI
WIRED DATA NETWORK
3201
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 22

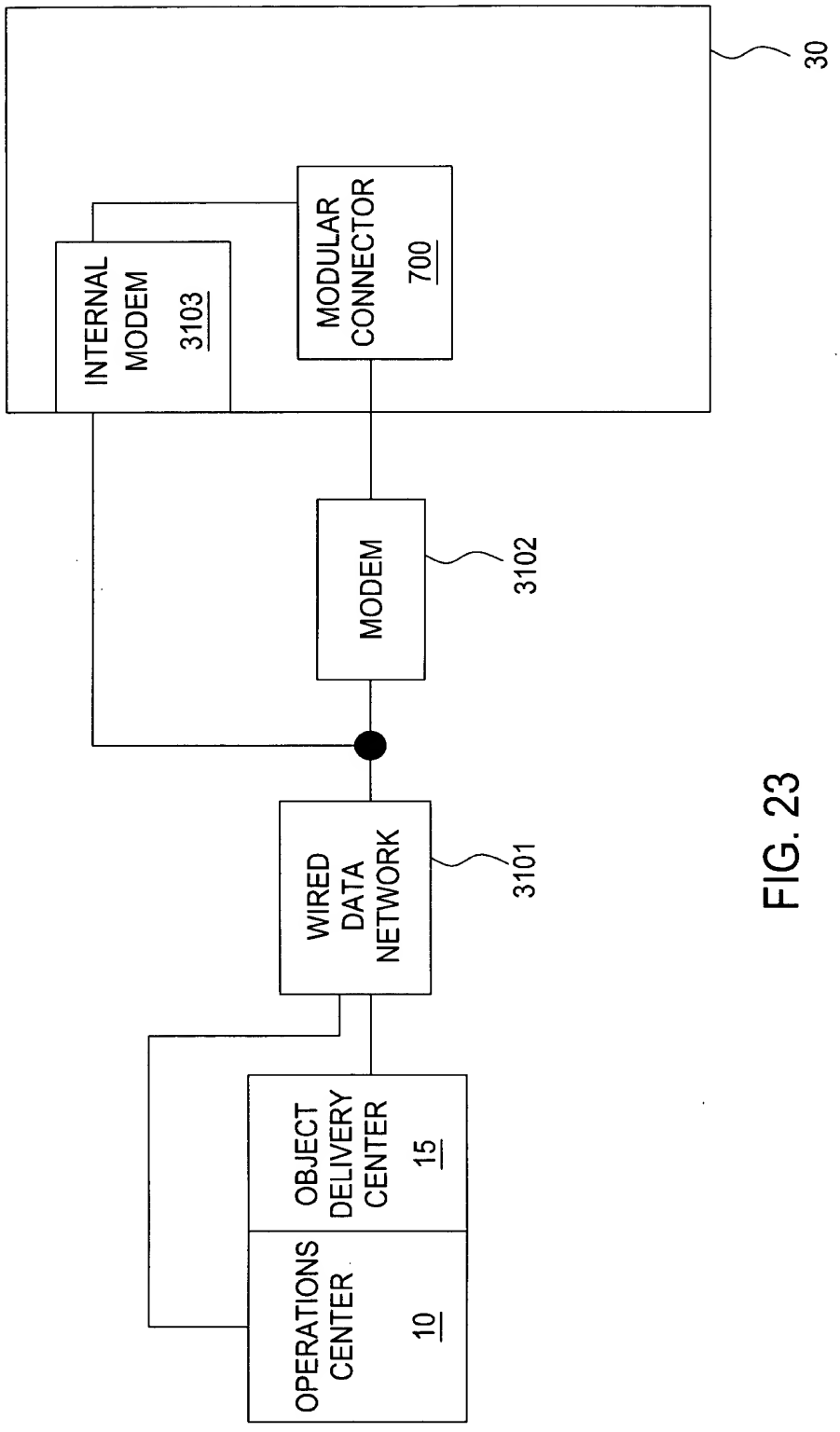

30
INTERNAL MODEM 3103
MODULAR CONNECTOR 700
MODEM
3102
WIRED DATA NETWORK
3101
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 23

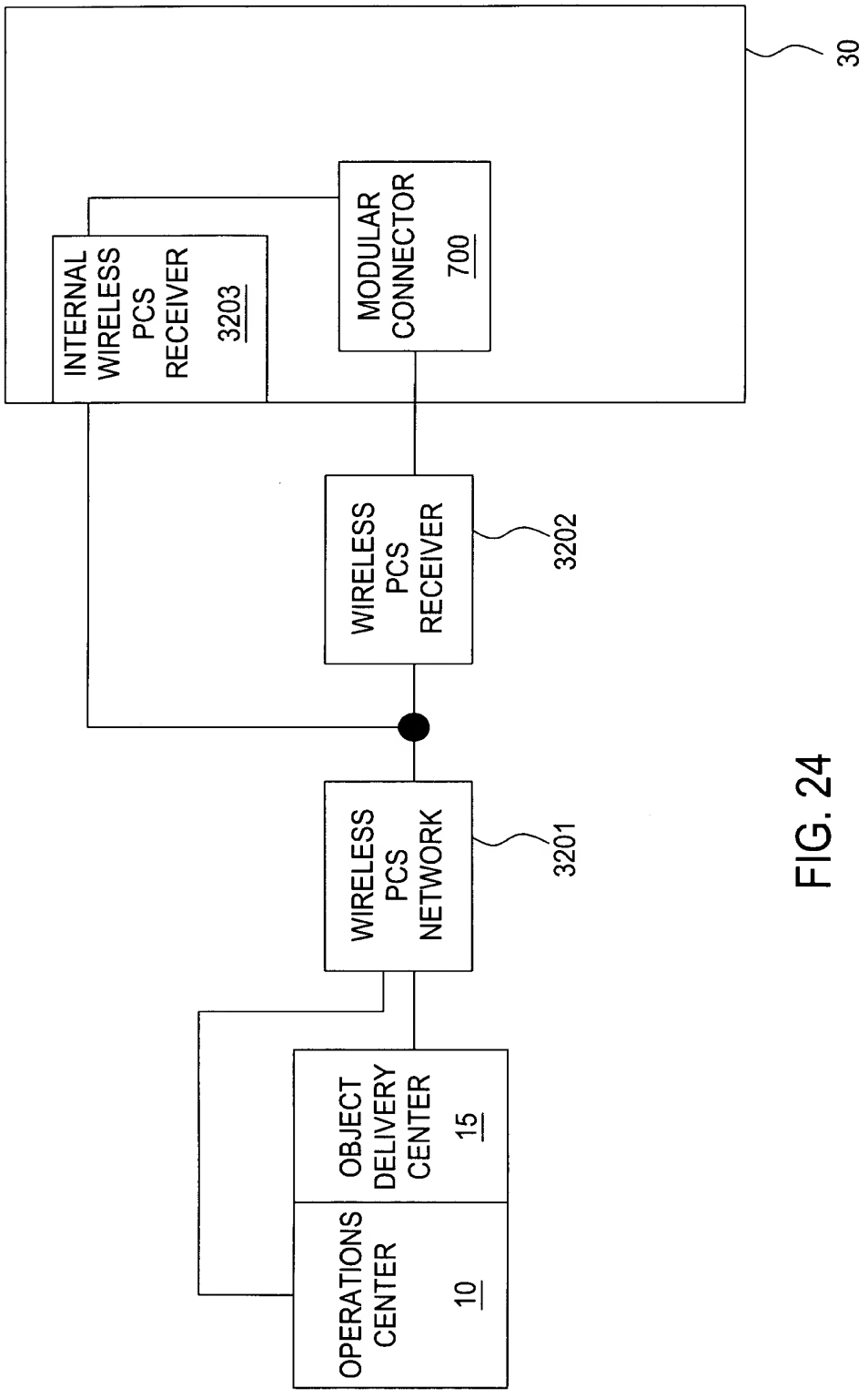

30
INTERNAL WIRELESS PCS RECEIVER 3203
MODULAR CONNECTOR 700
WIRELESS PCS RECEIVER
3202
WIRELESS PCS NETWORK
3201
OBJECT DELIVERY CENTER 15
OPERATIONS CENTER 10

FIG. 24

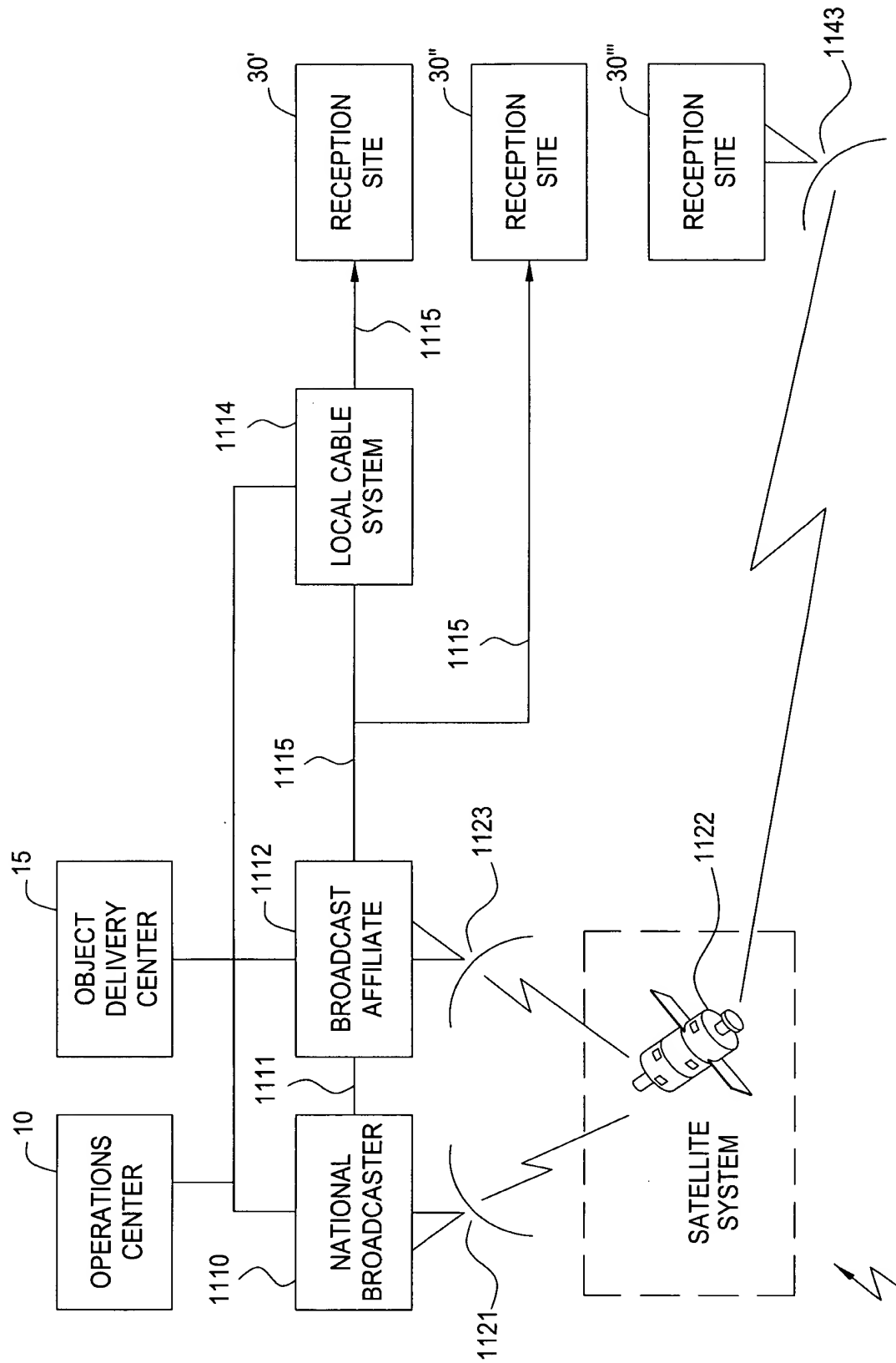

RECEPTION SITE
30'
RECEPTION SITE
30"
RECEPTION SITE
30'''
1143
1115
LOCAL CABLE SYSTEM
1114
1115
1115
OBJECT DELIVERY CENTER
15
BROADCAST AFFILIATE
1112
1123
1122
OPERATIONS CENTER
10
1111
NATIONAL BROADCASTER
1110
1121
SATELLITE SYSTEM
1120

FIG. 25

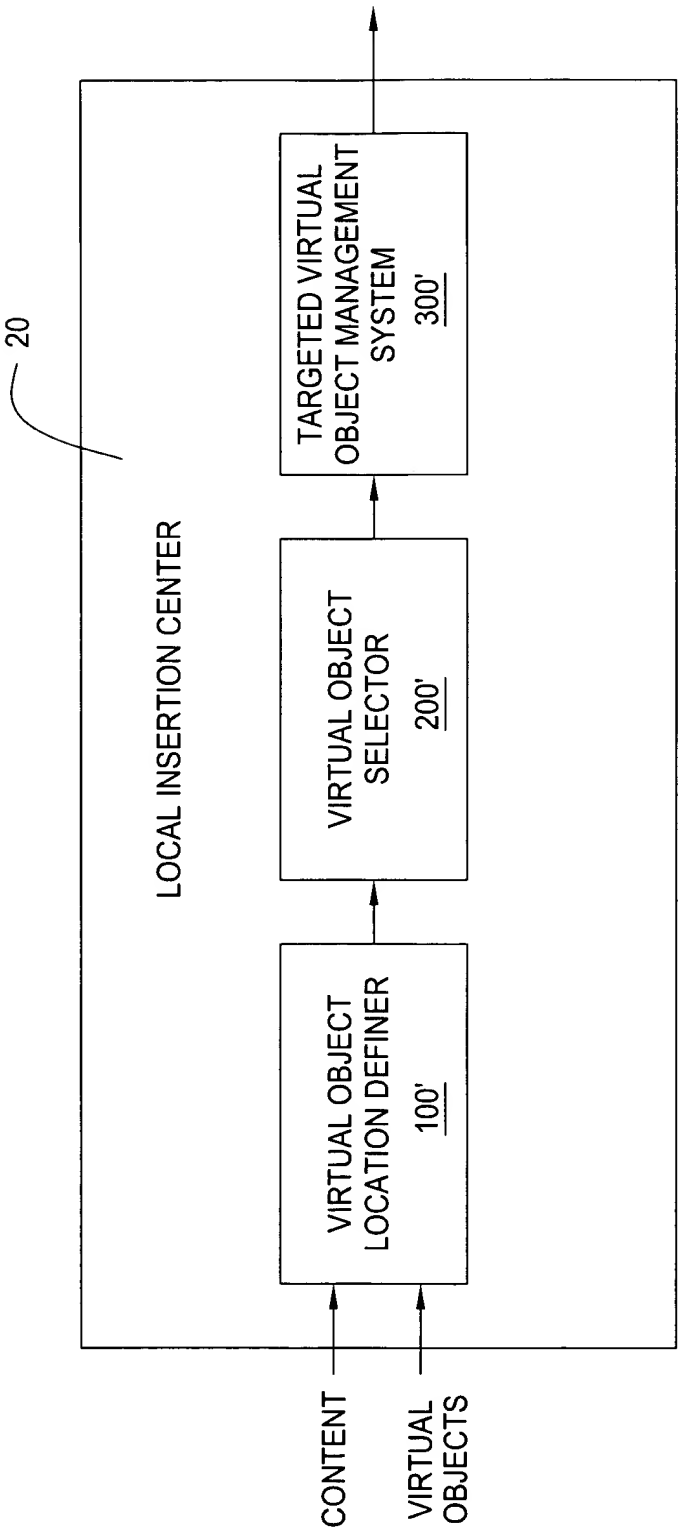

20
LOCAL INSERTION CENTER
VIRTUAL OBJECT LOCATION DEFINER
100'
VIRTUAL OBJECT SELECTOR
200'
TARGETED VIRTUAL OBJECT MANAGEMENT SYSTEM
300'
CONTENT
VIRTUAL OBJECTS

FIG. 26

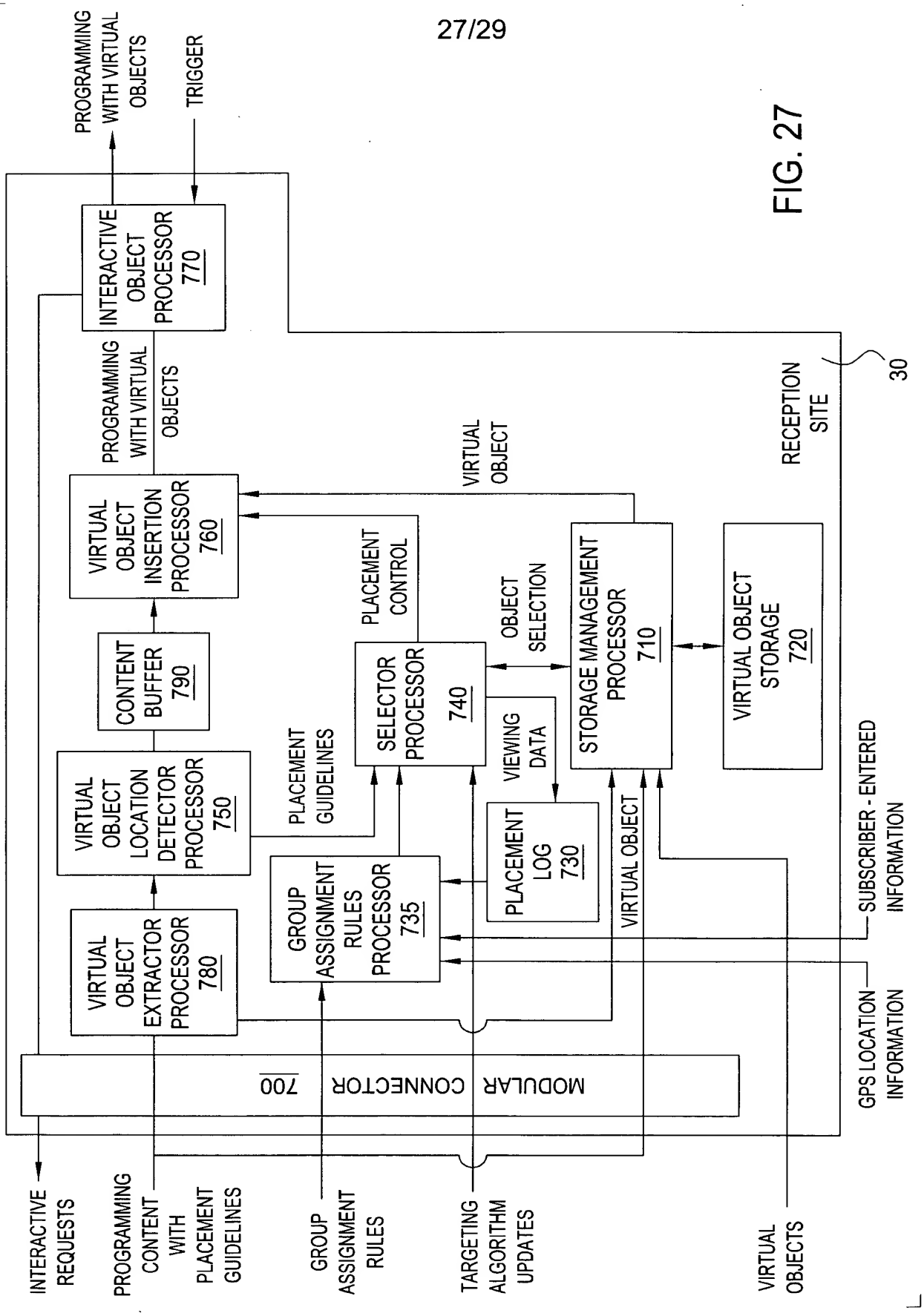

PROGRAMMING WITH VIRTUAL OBJECTS
TRIGGER
INTERACTIVE OBJECT PROCESSOR 770
PROGRAMMING WITH VIRTUAL OBJECTS
VIRTUAL OBJECT INSERTION PROCESSOR 760
VIRTUAL OBJECT
RECEPTION SITE
30
CONTENT BUFFER 790
PLACEMENT CONTROL
OBJECT SELECTION
STORAGE MANAGEMENT PROCESSOR 710
VIRTUAL OBJECT STORAGE 720
VIRTUAL OBJECT LOCATION DETECTOR PROCESSOR 750
PLACEMENT GUIDELINES
SELECTOR PROCESSOR 740
VIEWING DATA
PLACEMENT LOG 730
VIRTUAL OBJECT EXTRACTOR PROCESSOR 780
GROUP ASSIGNMENT RULES PROCESSOR 735
VIRTUAL OBJECT
SUBSCRIBER - ENTERED INFORMATION
MODULAR CONNECTOR 700
GPS LOCATION INFORMATION
INTERACTIVE REQUESTS
PROGRAMMING CONTENT WITH PLACEMENT GUIDELINES
GROUP ASSIGNMENT RULES
TARGETING ALGORITHM UPDATES
VIRTUAL OBJECTS

FIG. 27

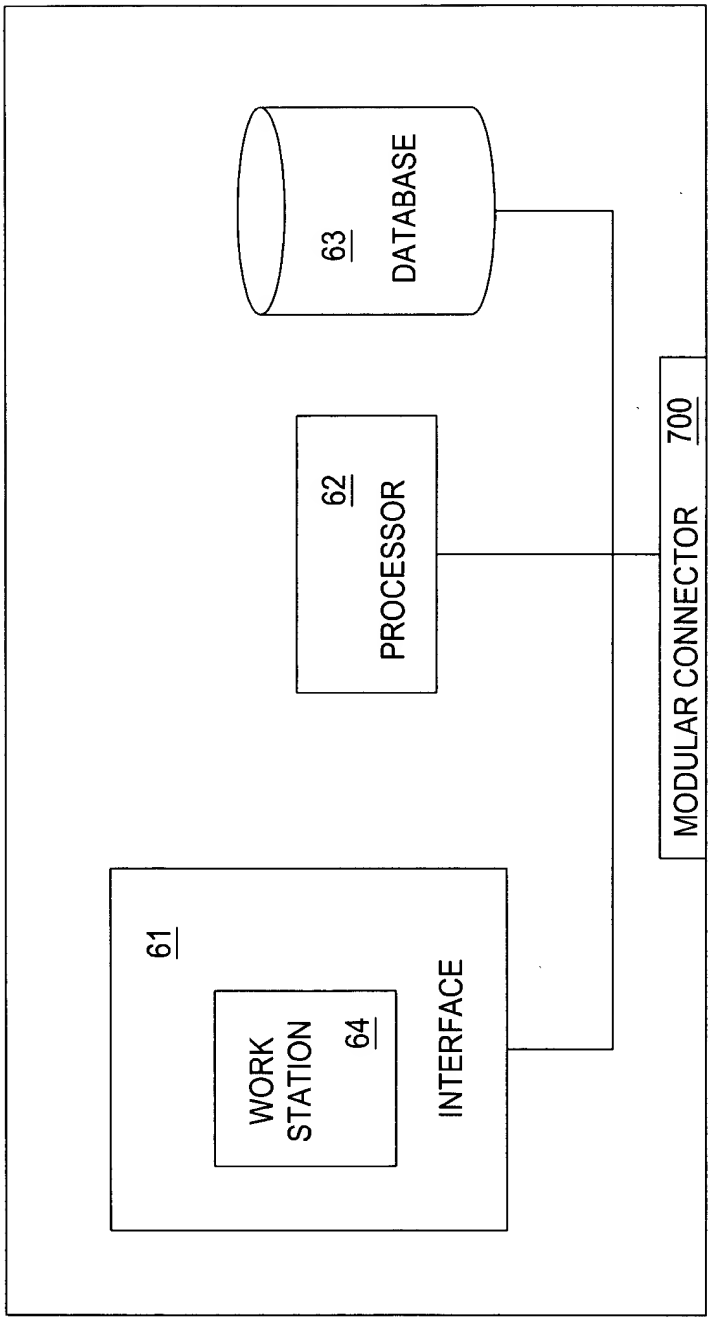

63
DATABASE
62
PROCESSOR
MODULAR CONNECTOR
700
61
WORK STATION
64
INTERFACE
60

FIG. 28

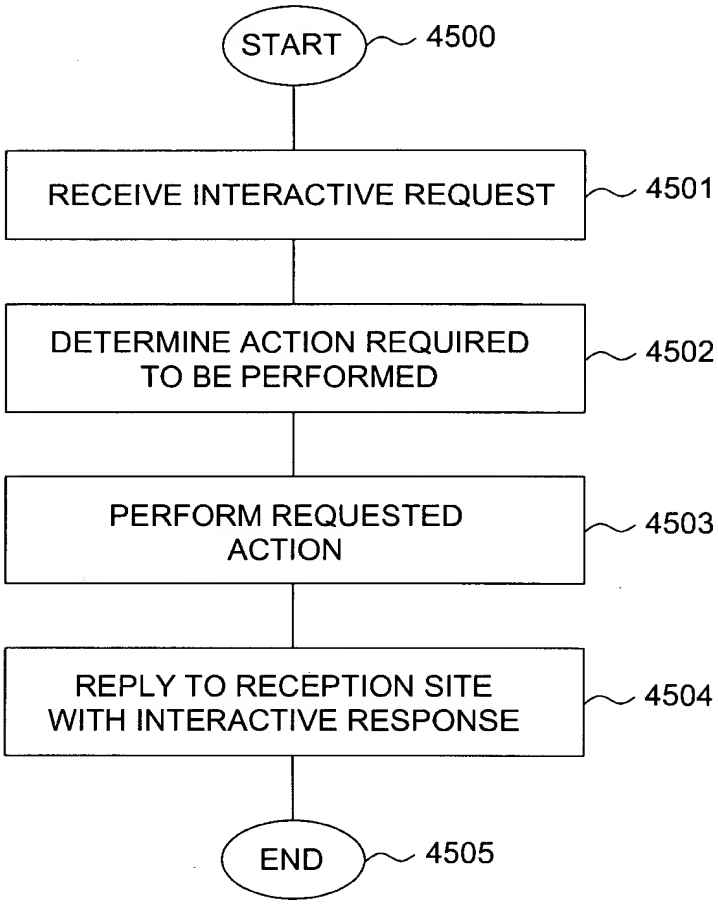

START
4500
RECEIVE INTERACTIVE REQUEST
4501
DETERMINE ACTION REQUIRED TO BE PERFORMED
4502
PERFORM REQUESTED ACTION
4503
REPLY TO RECEPTION SITE WITH INTERACTIVE RESPONSE
4504
END
4505

FIG. 29